



Indian Horizons

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Indian Council for Cultural Relations

The Indian Council for Cultural Relations (ICCR) was founded on 9th April 1950 by Maulana Abul Kalam Azad, the first Education Minister of independent India.

The objectives of the Council are to participate in the formulation and implementation of policies and programmes relating to India's external cultural relations; to foster and strengthen cultural relations and mutual understanding between India and other countries; to promote cultural exchanges with other countries and people; to establish and develop relations with national and international organizations in the field of culture; and to take such measures as may be required to further these objectives.

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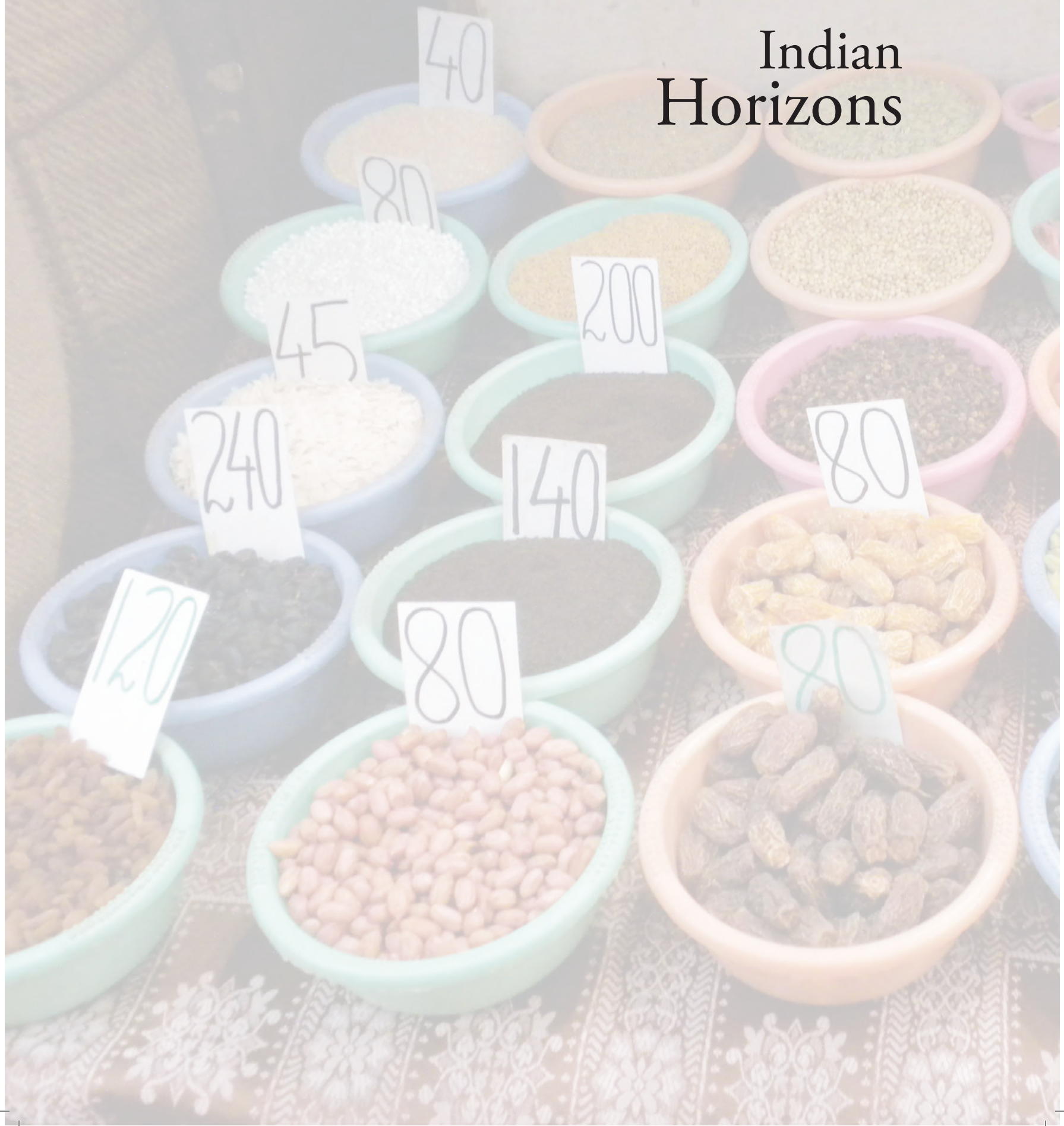
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Subhra Mazumdar

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Editorial

The theme for this issue came about when a photographer friend mentioned about her visit to a spice plantation in south India. While she reeled over the lifestyle and unique sights she had experienced, the common Indian regular in every kitchen acquired a more than life-size persona. A little research into spices revealed that there had been wars fought over it! That got me thinking about the theme of this issue that has finally materialized.

One of the first contributors who was game enough to go with the idea was Chef Manjit Gill, whose skill with spices is legendary in five-star kitchens. But for this issue, he preferred to give our readers a slightly off-centre look at spices by delving into why it is that spices are such an important part of our food preparations. Interestingly, his write-up informs us about the varying effects of spice infusions at different times of the culinary process – the real magic wand being wielded inside the cooking pot.

On learning about the lifetime research of Professor Pius Menandathel into the cultural roots of the spice trade in our country, found me knocking at his doorstep for a story. Despite a bout of ill-health and hospitalization, the learned professor was game about it. His article reveals not just the well known chapter in every history book that spices were an important item of Indian export to Europe, he fills in this broad framework with interesting details. Through his exhaustive coverage we discover the political colour these insignificant seeds and powders have wielded

among the trading nations and on our colonial history as well.

From the journeying in Arab dhows via the Levant to the Venetian coast in the earlier article, Dr Joshy Mathew's account non the theme takes us into the heart of the spice plantations of Kerala. Examining each of the varieties cultivated he reveals the astonishingly, that this lucrative commodity is still a garden product and not grown on an industrial scale. That made the whole idea of a spice being cultivated like tea or coffee, a cultural connect, linked to the climatic, soil and other details. Also, the drying, cleaning process of these spices wore away their commercial angle and assured me that the spice I used was a home-grown product cultivated with scientific knowhow.

The photo essay on the topic was shot by a young photographer Amrita Pratap, who has been winning distinction with her imaginative and original shots of everyday objects. Her collection has been garnered over several years and from several locations, ranging from the local grocer's store to visits to spice plantations. The interesting medley that the exercise has resulted in, summarises the all-enveloping nature of spices in our lives.

Realising that the retail trade in spices is a thriving transaction, writer Saikat Mukherjee obliged us by strolling around Asia's biggest spice market, Khari Baoli, in New Delhi and came back with a first hand report on the goings-on there, together with a cache of traders' snapshots, who

we learnt, were very forthcoming about sharing their experiences and posing for his camera. It took an entire afternoon of his time, to wend his way through the narrow by-lanes and haveli-like mansions to reach the spot, but judging from the final results, our readers would certainly vouch that it was a worthwhile exercise.

The romance of these small, dried, shriveled and visually uninviting items in sackloads that travelled across the oceans, has been ably presented in the article by Dr K S Mathew. Instead of talking about the item in the ship's hull, he has taken us readers behind the scenes into the world of intrigues, matrimonial alliances, dowry gifts in the form of spices islands and so on, through his account of the chequered history of spices. Also, the ancient links of spices in human civilization is given a proper exposure in the contents of his writing.

As no issue on spices would be complete without a mention of the utility of spices in Ayurveda medicinal practice, we approached Dr Anju Gupta, a practicing Ayurveda doctor to share her knowledge with our readers. Her account, gives us a ready reckoner about the advantages of

treatment with spices, the dosage, the benefits to be derived and also the preventive measures that spices can yield. A tabular break-up alongside the essay would be a keepsake in my medicine cupboard allowing me to turn to these effective treatments of common maladies.

A thought-provoking lecture delivered by the noted author-poet-novelist Dr Sitakant Mahapatra, merited inclusion on account of the ideas it has brought forth. Stressing on the syncretic roots of our culture and deliberating on the need to preserve it, Dr Mahapatra has awakened in us the urge to do our bit to promote a harmonious society.

Besides the usual inclusion of an archival segment that is concentrated on events at the ICCR in the eighties, the 'Happenings' pages at the end, deal with some of the prestigious international cultural shows that were held under the auspices of the ICCR, in India. The illustrated coverage of these events hosted in India, enhance the efforts of this organisation to give international culture an inviting platform in our country.

Editor



Subhra Mazumdar

Foreword

Amb. C. Rajasekhar
Director General, Indian Council for Cultural Relations

The magazine 'Indian Horizons' holds a mirror to the cultural face of the country, through its contents. Thus its cultural charter operates through a normative order that includes both high-end aesthetic inclusions, such as writings on literature, dance, music and theatre in the Indian context, but also social interactive platforms, including aspects of daily living. Keeping in mind the wide-angled vision that culture yields, this issue examines the cultural connotations around the potential of spices, and its many uses.

Having fixed our sights on spices for this issue the task ahead was to put together the right building blocks to present the inherent highlights of it, through an arresting, informative and attractive cache of reading material. In the course of arranging this rubric for presenting the cultural dimensions of Indian spices, we have examined its historicity, its international links and its cultivation methodology. The fact that spices have sparked off wars, affected international trade, controlled and forged ahead maritime routes as well as linked lands as far placed as the Levant and the Venetian ports, makes the humble kitchen essential acquire another dimension.

Having diversified our look at the spice culture of the country, it was imperative to choose the right authorship for documenting and presenting it. The contributors for the issue are well known

academics who have spent a lifetime of research hinged to the subject. Also, the hands-on authenticity about spice cultivation and usage has been guaranteed by approaching a spice planter and a chef of repute, who have graciously shared their lifetime experiences with us. Also, we have tried to give our readers a glimpse at the healing power of spices as is recorded in the ancient study of Ayurveda, thereby giving the theme a holistic treatment. The more contemporary look at spices has found place in a special tour of Asia's largest spice market while the photo essay writer has focused her lens to give readers a holistic feel of this product.

An insightful literary inclusion on the subject of Sufism in the Indian context by one of our well known litterateurs is included for your reading pleasure. The regular pages of photographs from the ICCR Archives and the coverage of international cultural festivals in India, are a way of informing our readers that the efforts of this organisation has been that of bridging the connoisseur and art lover with the happenings at this institution, both in the past and in the present.

We hope our readers will enjoy going through the contents as much as we have, in putting it together for them.

Amb. Amarendra Khatua

From our Archives



Scene from *Ramalila* : Bharatiya Kala Kendra troupe visited Hongkong, Taiwan, Philippines, Thailand and Vietnam in October, 1979



Scene from *Ramalila* : Bharatiya Kala Kendra Troupe visited Hongkong, Taiwan, Philippines, Thailand and Vietnam in October, 1979



Scene from *Ramalila* : Bharatiya Kala Kendra troupe visited Hongkong, Taiwan, Philippines, Thailand and Vietnam in October, 1979



Kabu Inga Dance : Jagoi Marup troupe visited Hongkong in October, 1980



Thang Jagoi: Jagoi Marup troupe visited Hongkong in October, 1980



Spear Fight :Kalaripayattu troupe from Kerala visited Hongkong in October, 1980



National Assembly Members Delegation from Bhutan at Temple in Khajuraho, December, 1980



Sword Fight : Kalaripayattu troupe from Kerala visited Hongkong in October,1980



Performance by Mr. Blaise Calame, French Violinist at I.I.C. on 20th September, 1980



Yog Sunder Troupe visit to Iraq, Baharain, Jordan, Kenya, Tanzania in April, 1980

Spice Routes and India through Centuries

Professor Dr. K.S.Mathew, Retired from the Pondicherry Central University

Intercontinental trade routes developed either entirely or partly through land and/or sea which brought several nations together, served as an important conduit for the diffusion of commodities, ideas, ideologies, culture and religion. Maritime space in this context, instead of separating the peoples, united one with the other for centuries together. These routes are known by the prominent item carried through them and thereby the nation which supplied it most. The trade route which came into operation during the Han Dynasty of China (206 BCE-220 BCE) is said to have covered 6,500 kms from the Eastern terminus of Loyang in China to Seleucia on the Tigris, or the neighbouring city of Ctesiphon from where it branched out into two—one to Antioch, on the Orontes river in Turkey, and the other to the Jordanian city of Petra, via the Persian Gulf. It connected China with the Mediterranean through India of the Kushanas and the territory of the Sassanians, who played an important role in the Asian trade. This intercontinental trade route is known as Silk Route on account of the prominence of silk traded through it. China which supplied silk is closely associated with the silk route. In the same way, we speak of another intercontinental trade route which connected over 40 nations with each other. It is known as the Spice Route on account of the prominence of the item—spices—traded via this route and India which was a major producer of spices is closely connected with it. Trade in this route, especially on account of the part played by the stretch of water bodies was governed by the

monsoon (*Monção, Mausam*)—both south west and north east monsoons. We shall address ourselves to the latter, namely spice route/s.

“Spice route/s” in this treatise means the waterways or land-based or both sea and land borne means of transportation along which spices were taken to different destinations through centuries. They varied from time to time and were not exclusively set apart for spices. The means of transportation too varied from period to period. In the early historical period spices were transported partly through waterways and partly through land by using different kinds of pack animals and vessels of different varieties. The Silk Route/s and the Incense Route/s also served as a major conduit for the circulation of spices. As there were directions of diverse nature through the centuries, the expression “spice routes” may be more appropriate than “spice route” to convey the meaning. However, both have been used indiscriminately here.

Silk Routes

The importance of pepper from among spices and its demand can be gauged from the ransom offered to Alaric I, the king of the Visigoths (395 - 410 AD), who sacked Rome in 410 AD and paved the way for the definitive fall of the Western Roman Empire. The first blockade of Rome was in September 408. The Roman Senate entreated for peace. After much bargaining, the famine stricken



Silk Route

citizens agreed to pay a ransom of 3000 pounds of pepper among other items, like 5000 pounds of gold, 30,000 pounds of silver, 4000 silken tunics, 3000 hides dyed scarlet, and 40,000 freed Gothic slaves. This shows that the taste of pepper had spread over barbarian Europe from Rome.

Another instance that showcases the demand for pepper is related to the wedding of a Portuguese Princess with a prince from Spain. The proposed dowry of Dona Isabella of Portugal for her marriage with Charles V of Spain consisted of 30,000 quintals of pepper. The Fuggers, the German merchant financiers, taking part in the sale of pepper imported into Lisbon from the Malabar Coast for the European markets, were asked to deliver the consignment. The volume of pepper carried in the ships setting sail from the Malabar Coast to Portugal fetched fabulous amounts. A Spanish ship loaded with pepper from

Malabar and heading towards Lisbon in 1592, was captured by Frobisher's ships off the Azores in the Atlantic. The pepper in the ship alone was worth £102,000/. Being aware of the great drain of wealth from Rome to the Malabar Coast, Pliny tried to dissuade the Roman citizens from the use of pepper.

Spice Route in the early centuries of the Christian era

During the early centuries of the Christian era, Muziris, the internationally known centre of sea-borne trade located in the lower Periyar valley of the south western coast of India, was the much sought-after haven of merchants from the Roman Empire and various parts of the world. Spices and various exotic commodities of the Orient made available at Muziris were taken from there to the Mediterranean port of Alexandria via a number

of intermediary ports. The vessels, carrying the commodities from Muziris, proceeded to Quana' which was an important market for African, Roman, Indian and Persian Gulf skippers. The voyage took 40 days. Foreigners were able to purchase frankincense at Quana' produced in South Arabia, the horn African and the Indian Ocean island of Socotra. Several ships moving between India and Berenike, between Quana' and the Persian Gulf and between the Indian Ocean coast of Africa and Southern India passed through Quana'. Quana was a peninsula jutting into the Indian Ocean. The ships from Quana' took the direction of Adulis, the major Red Sea port of the kingdom of Axum. The merchants further proceeded to Berenike which lay on the Red Sea coast about 380 kilometres to the south-east of Koptos. The consortium of South Indian merchants had their representatives in Berenike. Spices, especially pepper, were taken from South India to Berenike while fine wines, ornate glass, Roman silver and gold coins and red

Mediterranean coral were brought to the ports of South India from Berenike.

The so-called Serapis temple located on top of the highest point of the site at Berenike was found to be having two large Indian-made round-bottomed terracotta storage and shipment jars resembling a *dolia*. They were discovered in a courtyard—like area during the first century CE. A holding of 7.55 kg of black pepper corns was stored in one of the containers devoid of a wooden lid. This could suggest widespread use of pepper in the city throughout the early to late Roman periods as well as the shipment of pepper to the Roman Empire through Berenike. The merchants proceeded from Berenike to the Nile port of Koptos hiring fast moving camels to carry their goods along with them. There were a number of *praesidia* or Roman forts along the route from Berenike to Koptos which accommodated some soldiers, a few prostitutes and civilian workers and itinerant merchants.



Spice Route from the first century BCE

Felucca, a type of small Egyptian boat plying in the Nile, was employed by the merchants to cover the distance from Koptos to Alexandria, the Mediterranean port.

Spice Route from the first century BCE

The details of trade between Roman Egypt and India are available in the work entitled *Periplus of Erythraean Sea*. The spice route to central Europe could be considered to start from the Indonesian Bandalslands, the provenance of nutmegs and mace. The route initially covered a distance of 30,000 km, but after the discovery of the direct sea route by Vasco da Gama, it got shortened to just 16,000 km. Being in the same vessel, without any disembarkation or loading and unloading in between, the consignment of spices reached the European ports faster after the path-breaking discovery.

Spices from the Malabar Coast were taken also to Antioch, Alexandria and other places

through the ancient Silk Route/s. The Seleucid ((323 BCE-30 BCE), Ptolemaic (305 BCE to 30 BCE), Parthian (247BCE-224 CE), Aksumite (100 CE-940 CE and the Sasanian (224-651 CE) Empires promoted trade in spice. The Ptolemies of Egypt and the Roman Emperors, chiefly, till the fall of the Empire to the Goths, got the spices transported from the Malabar Coast to the Mediterranean port of Alexandria and further on to Rome on the River Po, via Red Sea regions through waterways and by land, over the desert and again by waterways through the Nile. With the rise of Constantinople as the headquarters of the Eastern Roman Empire, a further diversion is noticed in the route through which spices from the Malabar Coast found their way. It was the development of a new passage along the Persian Gulf via the Levant and then to the Eastern Mediterranean and finally to Constantinople. Simultaneously or side by side with this, the Incense Route too was used for transporting spices from the Malabar Coast.



Spice route/s during the early medieval period and later

Spice route/s during the early medieval period and later

Subsequent to the emergence of Islam in the seventh century and its aggressive spread in the Mediterranean and Arabian regions brought about considerable change in the political scenario which drastically affected the course of spice route. The same may be said about the geo-political changes on the extreme south western coast of India.

The political changes taking place on coastal Malabar brought about realignment of lasting consequence in the position held by port towns which served as intermediaries between the hinterland and foreland in sea-borne trade. Relegating Muziris to the background, Quilon (Koulam Male) emerged in the ninth century CE as the most important port town in Coastal Malabar with the land lent by of the Chera rulers of Mahodayapuuam intent on keeping at bay the incursions of Pandyas and later the Cholas and attracted from the Persian Gulf regions the merchants of the Abbasid Caliphate and continued to dominate in the maritime trade between the regions of al-Basrah (Muscat or Sohar (Oman) and Hormuz on the one hand and Canton in China on the other. Large Chinese junks used to visit Quilon as a part of the Chinese tributary trading system. The Mongol mission carrying with it a golden badge for Wa-ni, the king of Koulam Mali with the title of "Fu-ma" or imperial son-in-law inscribed on it in the name of the Chinese emperor was sent to Quilon in 1283 CE.

The political changes, especially the disintegration of the Cera Empire of Mahodayapuuam in 1124 CE, helped the port of Calicut emerge as an important emporium of international seaborne trade by the thirteenth century CE. Manavikrama, the Governor of Ernadu (*Nediyiruppu Swarupam*) having the headquarters at Nediyiruppu near Kondotti in the modern Malappuram district defeated Porlatiri, the ruler of Polanad and

shifted his seat to Panniyankara in Calicut near the Arabian Sea, the former headquarters of Porlatiri and built the Velapuram fort in Calicut in the thirteenth century. Ibn Batuta who visited Calicut in 1343, stated that Calicut was the most important port of Kerala. In a similar vein, the chief of the *Perumpadappu Swarupam* having his seat at Vanneri, a land-locked area near Ponnani, shifted his headquarters around 1405 to Cochin which emerged as a port in 1341 to take advantage of the maritime trade.

Similarly, the Political upheavals like the sacking of Baghdad in modern Iraq by the Mongols under the leadership of Hulagu Khan in 1258 CE and the abolition of the Abbasid Caliphate, dealt a fatal blow to the commercial relations of the Persian Gulf region with Coastal Malabar. Similarly, the establishment of the authority of the Mamluk (Slave dynasty) Sultanate and the movement of the Abbasid line of rulers to the Mamluk capital of Cairo in 1261, reinvigorated the international trade of coastal Malabar via the Red Sea regions to Cairo, Alexandria and further on to the ports of the Adriatic Sea. This political condition lasted from the overthrow of the Ayyubid Dynasty until the Ottoman conquest of Egypt in 1517 CE.

Trade in spices via the Red Sea regions was further developed by the Mamluks of Egypt. It was brought under the monopoly of the Sultan of Egypt. So, the route along the Red Sea to Cairo and Alexandria received an unprecedented boost. The merchants from Venice and Genoa established their factories (warehouses) in these ports, especially in Cairo. When Constantinople fell to the Turks, the Europeans began to work hard for an alternative route connecting the ports of the Atlantic with those of the Malabar Coast. In this race, the Portuguese turned out victorious and diverted the flow of spices via the Cape of Good Hope directly to Lisbon—entirely through sea route. Since 1511, mace, nutmeg, cloves and other spices from the Southeast Asian regions began to be brought to the Malabar Coast to supplement

the cargo of spices obtained from here. Though the Portuguese did not succeed in completely stopping the diversion of spices via the Red Sea, especially after the thirties of the sixteenth century, the subsequent contending companies, like the English, the Dutch, the Danes and the French, intensified the use of the route via Cape of Good Hope so much so that the Europeans first thought of this as the Spice Route par excellence. In fact, in any discussions on spice routes, the discussants thought only of this route.

The commodities like spices from the Indian subcontinent, especially from the south western coast were taken to several parts of the world through different routes before the arrival of the Portuguese. One could distinguish a land route and two sea-routes used since the time of the Crusades to carry these oriental commodities to Europe. The land route from India took the direction of the areas of the Persian Gulf, Bassorah, Bagdad, Aleppo and then through the regions of the Gulf of Alexandretta (Iskenderum), Ankara, Constantinople (Istanbul) and from there to the other parts of Europe. Since the land route was liable to extraordinary risks on account of political factors and piracy, the sea-routes were preferred and they became more important in course of time.

The main sea-routes that were used for the purposes of trade in the oriental commodities, before the arrival of the Portuguese were two: one through the Persian Gulf and the other through the Red Sea. Pepper, ginger and various other sorts of oriental commodities were shipped to Ormuz from the Malabar coast and things needed for exchange in that area were left there. Then the rest of the commodities were shipped to Bassorah on the bank of the Euphrates from where a part was transported by caravans to Armenia, Trebizonda and Tartaria and the rest to the cities of Aleppo, Damascus and finally to Beirut on the Mediterranean. The Venetians, Genoese and Catalans, who were the masters of the trade in spices purchased the commodities

from this city and carried them to other parts of Europe for resale. In certain cases, the merchants from Germany, Hungary, Flanders, France and other parts beyond the Alps, went to Venice to purchase the spices.

The other route through the Red Sea had occupied a more important place in the period before the arrival of the Portuguese. The commodities from Calicut and other ports on the Malabar Coast were taken to Aden on the Red Sea side and from there to Djeda (Jedda) near Mocha. The merchants paid customs duties in Jedda to the Sultan and then the commodities were loaded in smaller vessels to be shipped to al-Tur near Mount Santa Catharina, otherwise called Suez and the customs duties were paid here too. Then by means of camels hired at four *crusados* each the merchandise was transported to Cairo where again taxes were paid to the Sultan. Sometimes, the Karimi merchants who dominated the spice trade between the twelfth and fifteenth centuries in the area from Aden to Cairo, their headquarters, made use of another shorter route. Instead of taking the cargo to Suez, they stopped at Qusair on the Egyptian side of the Red Sea and from there by means of camels and slaves the commodities were transported to Qus, an important commercial centre of Egypt next to Cairo at that time. Then the merchandise was sent to Cairo through the Nile in barques. This diversion from Qusair reduced the duration of transport by land.

From Cairo the commodities were taken in barques through the Nile to Alexandria, with a halt at Rosetta, where customs duties were paid to the Sultan once more. Then the camels carried the things from Rosetta to Alexandria where the spices were sold to the European merchants from Venice, Genoa, Marseilles and Barcelona. From Venice the merchandise found its way to Germany, Flanders, France, Hungary and so on

as noted above. The Sultan of Egypt was reported to have received 600,000 *crusados* every year by way of customs duties levied from the traders in spices. So it is easy to understand the exorbitant prices of these commodities in Venice and upon re-export, in other parts of Europe.

The merchants on the Malabar Coast made use of the sea-route to reach Cambay in the North, Ceylon, Maldiv Islands, Pulicat on the Coromandel coast and the ports of Orissa. They used *catures* and *tones* to ship the merchandise to these ports. At the end of the fifteenth century about 400 cargo boats were found engaged in the trade. Keeled ships with a capacity of one thousand to one thousand and two hundred *bhars* were built in Calicut during the days of its prosperity. They were constructed without any nails but only with thread and coir. At least fifteen of these ships were used to take spices every year during the monsoon to the Red Sea, Aden and Mocha. The merchants from the Malabar coast navigated generally for eight months a year i.e., from September to the end of April with their merchandise, to various places.

Apart from the overseas routes through which spices were transported, there were other relatively short coasting voyages for the circulation of spices. The Gujarati merchants shipped the spices from the Malabar Coast to Gujarat through the Arabian Sea. When Vasco da Gama came to Calicut he found Gujarati merchants there. In fact the Zamorin in 1500 assigned a few Gujarati merchants to get the Portuguese factor and his assistants acquainted with the dynamics of trade in spices in Calicut. Similarly there were also *Chettis* or traders from Tamil Nadu trading in spices in Calicut at the time of the arrival of the pioneering mariners under Vasco da Gama. The Indian merchants took spices from the Malabar Coast to other destinations through maritime

trade routes. Cinnamon from Srilanka was brought to the Malabar Coast by sea.

Spice route on the eve of the arrival of the Portuguese

There are many historical evidences which suggest that there were land routes within the subcontinent of India through which spices were transported from Malabar to the Coromandel coast either for local consumption or for export to overseas destinations of some European merchants like the Danes. Pepper and a few other spices available in the Malabar coast were transported to the Eastern coast through land routes crossing the Western Ghats. Communication between these two regions was made possible through twenty to twenty four routes across the Western Ghat, namely two in Travancore, three in Kayamkulam, two in Kundara, six in Tekkenkur, two in Vadakkumkur, three in and behind the lands of Cochin, two in the domains of the Zamorin and two in the countries of the Kolathiri Raja. The important passes across the Ghats were: Perambadi Gap to Coorg, the Peria and Thamarassery Gaps to Wynadu and Mysore, and Bodinayakkanur, Kambam, Aryankavu and Aramboli Gaps in Travancore region. The most important pass of all was the Palghat Gap, about 20 miles wide and not more than 970 feet high. The bulk of the overland trade from the Malabar Coast to the eastern coast took place through this Gap.

The commodities from the Malabar coast were sent on the back of bulls through Aryankavu pass near Punalur in the south and through Kanjirappally, to the Coromandel coast. The land route from the Malabar coast to the Coromandel coast via Aryankavu pass was used to send chiefly spices to the Eastern coast. The flourishing pepper export to the eastern coast of India, disturbed the Europeans engaged in trade in spices, as they were bent on keeping monopoly over it. Though the Portuguese and the Dutch tried their best to



Spice route on the eve of the arrival of the Portuguese

stop it under monopolistic treaties, they did not succeed in this on account of social, economic and military reasons. The *pattars* or Tamil Brahmins enjoyed several commercial privileges, which constituted the most important sociological factor. The rulers on the Malabar coast granted certain privileges to them. The most important among them were the exemption from customs duties for the commodities carried by them and the free boarding and lodging in *choultries* or temples. The *Pattars* were exempted from paying tax for the loads they carried on their backs. They were, on the other hand, bound to pay only half the usual tax for the loads they carried on their heads. So, every *pattar* used to carry two loads. Therefore a host of *pattars* were engaged in transporting spices from the Malabar coast to the eastern coast taking advantage of these privileges. Sometimes they employed pack-oxen for the same. In 1519 Hector Rodrigues, the Portuguese Captain at Quilon seized 5,000

bullock-loads of pepper being carried to the East Coast from the region of Quilon through Aryankavu pass. The merchants asserted that the consignment belonged to the *Pattars* who had been given special privileges by the kings. Large number of *pattars* from Tinnelvely, Tanjore and Coimbatore settled in the Malabar coast giving rise to *agraharas* or villages dominated by them. Their main habitat was Palghat. Thus one can speak of spice route passing from the spice producing areas of Malabar through the Ghats to the eastern coast.

Spice route and the West Europeans

After the fall of Constantinople to the Turks in 1453, the West Europeans vied with each other to open a direct Sea-route to India. The Portuguese under the royal patronage courted victory in this effort and landed at Calicut, the international



Spice route and the West Europeans

emporium of sea-borne trade connecting Malacca with Alexandria via Khambat and further on the ports of the Adriatic. The undaunted Portuguese admiral, Vasco da Gama and his successors paved the way for a closed sea which was theoretically and practically challenged by the Dutch, the English and the French. The new and direct sea-route connected the ports of the Atlantic with those of the Western coast of India via Cape of Good Hope sealing the passage through the Red Sea and Persian Gulf. Gradually the Portuguese monopoly over the spice route was brought to naught and the Dutch, the English, the French and the Danes began to use the spice route inaugurated by the Portuguese.

Spices were also produced in South East Asian Regions, especially in Sumatra, Java and Moluccas known as Spice Islands, as well as Malaya and Borneo. The Europeans moved to these areas to supplement what they obtained from the Malabar coast. Similarly, mace and nutmeg, both products of the same tree, were cultivated in Banda Islands, a group of 10 small volcanic islands in eastern Indonesia. Prior to 1511 no European seems to have known the source of these two items. The Portuguese arrived at Banda Islands in 1511, by accident through a shipwreck. The Spanish and the English entrepreneurs followed them. But the Dutch stuck on to these Islands, trading in these items.

The local smugglers passed nutmeg and clove saplings to a Frenchman, called "Pierre Poivre". He established spice farms in Mauritius and Réunion. Cinnamon was produced in Sri Lanka. This was supposed to be better than the ones found on the Malabar coast. Pepper was cultivated in the humid climate of the Malabar coast, especially in the highlands and also in the midlands.

Spice route under the Dutch

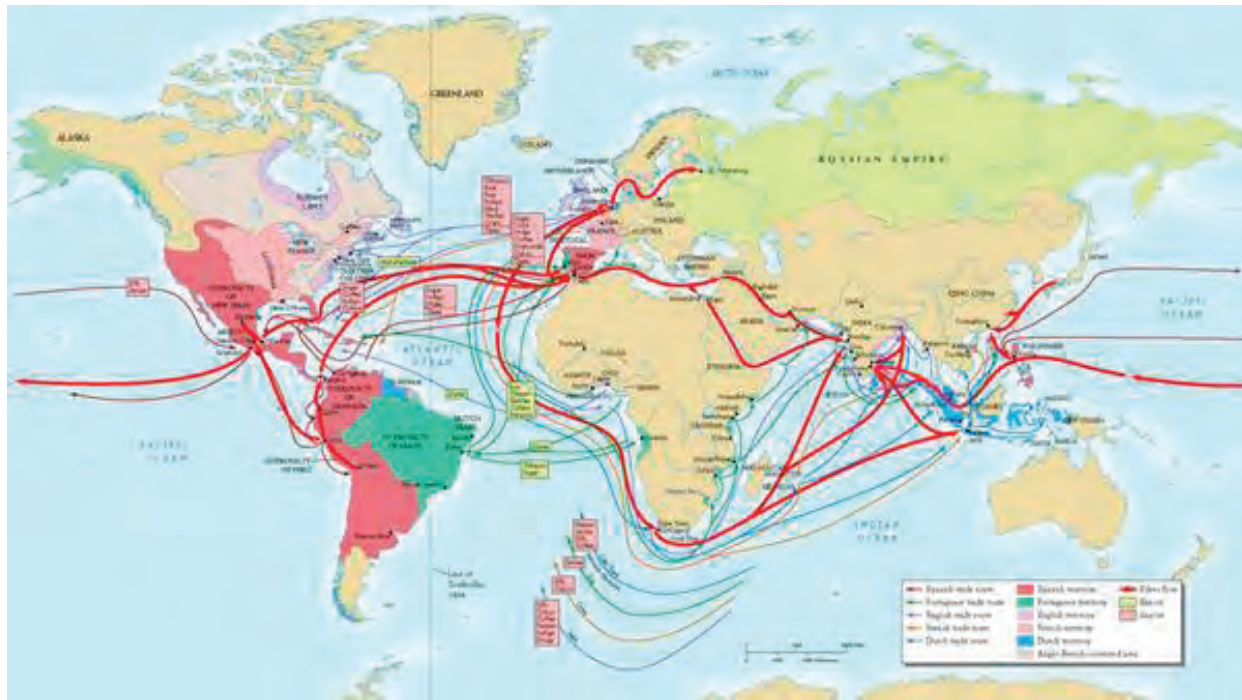
The spice route remained in use for a long time and the west European powers contesting against the Portuguese for the monopoly of trade in spices and spice routes continued fighting among themselves causing untold hardships to the navigators. Just for obtaining a foothold on the south western Indian coasts several mariners

lost their lives and found their graves in the bottom of the sea. At last the direction of spice routes via the Cape of Good Hope was once again replaced by the earlier passage through the Red Sea regions with the opening of the Suez Canal, on 17 November, 1869, the construction of which began on 25 April, 1859, at an outlay of \$100 billion.

The overseas spice routes through the different periods connected a number of countries with the south western coast of India. UNWTO has identified 32 countries linked through the spice routes. They are: 1) Afghanistan 2) Burma 3) China 4) Denmark 5) Egypt 6) Eritrea 7) Ethiopia 8) France 9) Germany 10) Greece 11) India 12) Indonesia 13) Iran 14) Iraq 15) Italy 16) Jordan 17) Lebanon 18) Beirut 19) Malaysia 20) Mozambique 21) Netherlands 22) Oman



Spice route under the Dutch



Spice routes under the British

23) Pakistan 24) Portugal 25) Saudi Arabia 26) Somalia 27) Spain 28) Srilanka 29) Syria 30) Turkey 31) UK and 32) Yemen. We can add a few more, like Belgium, Hungary, Poland, Russia, Luxemburg, Norway, Sweden and Thailand. The European merchant financiers, especially the Fuggers of Germany, who took up the sale of spices to various parts of Europe, had set up their factories in various parts of Belgium and the Scandinavian countries for storing and disposing of the consignments. The extant warehouses of the Fuggers in Bruges, Bergen (Denmark) and such others, with their typical architectural style, speak of the connection established by the spice routes.

Spice routes under the British

The opening of Suez Canal furthered the flow of spices to various parts of Europe and further to the American continent. The duration of the voyage was reduced considerably. The west European

powers like the Portuguese, French, English, the Dutch, the French and the Danes who came in search of spices and developed transportation through the spice routes established colonies in various parts of the Indian Ocean regions and turned out to be colonial and imperial masters thanks to the spice routes.

Thus in fine, it may be conclusively stated that the spice route/s through centuries brought a number of peoples and nations together and that it served as an important means for the diffusion of culture. Asian religions like Buddhism, Jainism, Christianity and Islam became world religions spread all over the world. Though Christianity which originated in Asia was in India from the first century CE, it entered into the subcontinent and other continents under the European garb through the merchants and missionaries who traversed through the spice routes after 1498. Indian religions got themselves embedded in various parts of China, Japan and remote areas of South East Asia through the spice routes. ❖❖❖

Khari Baoli: Asia's Spice Market

Saikat Mukherjee

The first-time visitors to the older part of Delhi usually alight at the entrance of the Red Fort. The more knowing and slightly adventurous among them are willing to travel a bit further, along the Khari Baoli Road towards the famed Spice Market of the area. Locally known as the Spice Market of Khari Baoli or to be still more

precise, as the Laxmi Narain Gadodia Market for spices, this part of the capital city is reputed to be the largest spice market in Asia. A visit to the place on any working day of the year, would leave no doubt in one's mind about the efficacy of this claim.



A view of Main Market



Located on the south side of the ancient Khari Baoli, it gets its name from a step well of salt water that was built in the 17th century. Though its water was unfit for drinking it could be used for animals and for bathing. The well had originally been built by Begum Fatehpuri, one of the begums of the Emperor Shah Jehan. Of course, the step well has long since vanished and above it now stands a thriving spice market, flanked on its west side by the famed Fatehpuri Mosque and almost within shouting distance of the famed Red Fort, built by the Emperor Shah Jehan.

The current avatar of the area, in the form of a spice traders' market, came into being in the 1920s when a group of wealthy merchants saw its potential as a trading hub and built fancy

palaces and residential complexes, one of which currently houses the spice market, which had been constructed by the merchant Lakshmi Narayan Gadodia. Built around a central square, with the shops ringed around its boundary, the place serves as a lively business centre for wholesale purchases of both everyday spices and the more exotic ones. As the builder had conceived it to serve as a commercial complex right from the start, the pattern of space usage is catered to both residential and business requirements. While the ground floor of the complex housed the main shop for selling the merchandise, the next floor of the complex served as the godown for bulk storage of the merchandise. The family of the merchant lived on the second floor and had a beautiful view of the city from their vantage point, as also a clean and airy surrounding on the



Spices in raw form

terrace, to relax in after a day of hectic trading on the shop floor below.

The vestiges of its erstwhile status is long gone but not forgotten, for the architectural ornamentation of the complex is still eye catching. As one looks skywards towards the upper floors with its cast iron railing surrounding a balcony and the four corners of the mansion-like marketplace ornamented with cupolas, the mind's eye goes into fast mode to refigure out the grandeur of these structures in their unspoilt glory. The shop fronts, too, had a welcoming air, for the entire façade opened on to the courtyard. Unlike retail outlets elsewhere, these wholesale merchants do not believe in exhibiting their wares for their customers. Thus the décor of the shop is more like the 'baitha kkhana' or private drawing room of a merchant family, than a regular sales outlet, as there are no shelves displaying the wares on sale. The bare walls of the shop sport a calendar or the patriarch's portrait. A niche in

the corner houses a deity perhaps and there is no standalone furniture or shelves to clutter the space. The only furniture to be seen is a large platform or takhat covered over with a spotless white sheet with the owner of the shop seated cross-legged in front of a portable writing desk that rests comfortably on the takhat, as it had no legs and the desk front is slanted suitably to form a writing platform. Cash and keys are securely kept below, in a compartment under the writing lid and the telephone lies cradled within reach, for carrying out transactions. Thus these shops do not give off a foreboding busy air to customers, but exude an old world courtesy to the visitor—customer by inviting him to be seated comfortably on the takhat for an exchange with the shop owner.

In contrast to the stark furnishings of the shops within the wholesale market, the retail outlets along the main road of the market, sport colourful



A basket of spicy choices



Raw spices as retail ware

mounds of spices, arranged in sacks along the shop front. Price tags for the wares are pinned onto placards and placed prominently above the spice heaps which are contained in large gunny sacks. Instead of men being seen behind the counters carrying on business, a sizeable number of these shops are run by women owners. Says



Ready for grinding



Spices for home made shampoo

Shashi Prabha Gupta, who has been running the shop since six years, 'I have been taking care of the retail business to give relief to my husband, as I now have a daughter-in-law at home who runs the house. This gives me enough time to help out at the shop and give my husband and sons some time to attend to other sides of the business.' Speaking of the wares that she finds are fast selling items, she points to the 50 kg gunny sacks of everyday spices, such as turmeric and coriander. Unlike the kirana store in the residential markets, where spices are sold readymade in packaged form, here she sells to retailers who buy the spices whole and then take on the task of packaging them at their end. Also, claims Shashi Prabha, a large bulk of customers come during the marriage season when bulk



Spices to improve digestion



Karwa badam for diabetics

buying of spices is required for the numerous feasts associated with the occasion.

Thus her wares make an intriguing show, in their raw, unpackaged condition. Apart from the more common spices, such as turmeric, coriander, cumin and chillies, there are sack loads of what



Sackfuls of retail ware



The packaged product on the counter

at first sight looks like tree bark, shriveled roots, seeds and nettles. On enquiry we are told that these items are not of an edible category. The shriveled variety of nuts known as 'reetha' in common parlance, is used as hair shampoo and nourishes hair. Other items such as mulethi is used for easing joint pains while the karwabadam a brown flat nut-shaped seed, is consumed by diabetics. The alpha seed and the fox nut or makhaanaa, in this heap, is a more recognizable bag among this array of mysterious ware. All of them look tempting and attract not just curious onlookers looking for a photo opportunity, but also genuine buyers who are willing to buy here because the retailers maintain a free cleaning squad behind their shops, assigned the task of sorting and cleaning the seeds, sticks and powders, making them presentable and shop worthy.

But the real draw of a spice adventure is not this spruced display on the street front. It is the walk



Spices on display for the customer

down a mysterious, pitch dark lane adjoining a side street, that marks the entrance to the wholesale spice market. One must be alert for sounds more than sights while traversing this 500 yard or so walkway, as there are large handcarts loaded with sacks and other commodities that are trundled down the centre, with the drivers warning pedestrians to step aside, for it is difficult for them to slow their pace, or come to a halt, as the narrow path is on a down slope to help the cart puller carry his heavy load of wares. The lane reaches a dog's leg turn and abruptly, the area streams with natural light as one reaches the shops and buildings of the spice dealers.

Unlike the shops, spices here are not on display and hence these outlets sport just sacks filled with chillies, coriander seeds and turmeric, the must-haves of any household kitchen. As we get talking to the owners, they are quick to inform



us that spices, even the everyday variety, cannot be procured from any one source. Shop owners in this market being bulk buyers, therefore traverse the entire country and buy off the producers growing them for the market. Incidentally, there is no spice that is grown in the capital and its surrounding regions. The turmeric, we learn, is mostly procured from Tamil Nadu and Andhra Pradesh and every trader in the market has his contacts in those states. The coriander seeds used in Indian cooking is a product of the central and western regions of the country and the bulk purchases are done from dealers in Madhya Pradesh, Rajasthan, Gujarat. The mode of carriage is in gunny bags because the open and loose weave of the jute bags allows air to pass through, keeping the spice crisp and

free of mildew. Each bag when loaded, can hold about 40 kg of coriander seeds and around 50 kg of turmeric rhizomes, giving the trader a swift reckoning of his quantities even before the sacks are loaded on the scales.

An essential part of the spice dealings in this marketplace is the need for manually driven push carts. As the entrance to the market is too antiquated and narrow for motorized vehicles, such as trucks and tempos, the age old system of manual carriage is resorted to. Instead of loading the sacks in ones and twos on people's backs, a hand-held wooden cart has been specially created for use in this area. The cart consists of a sloping platform mounted on four wheels. Usually, the platform is made from thick slats



A tempting offer of spices

of neem wood joined together to make a plank. This is then screwed on to four wheels. A pair of handle bars in the front of the cart is provided for the driver to hold the cart and steer it through the pedestrian traffic thronging the market during business hours. Once these carts are loaded with the sacks, it is difficult for a single person to push it through, successfully. Thus there are two to three helpers who travel alongside the cart, or push the cart forward from the rear end, while the driver in the front steers his course through the throngs of shoppers. Without any light signals or even warning bells to caution pedestrians, these cart pushers holler to the crowds to move out of their way as they wend their way out of the narrow entryway on to the main street and on to waiting trucks.

In order to assess how much load a cart can carry, there are no weighing scales around. The hand cart pushers make a rough reckoning of the load by counting the sacks that have to be loaded. 'We can carry up to 15 bags of turmeric in one shift', they inform.

If it is chillies, which are lightweight in comparison, we can carry 20-25 sacks at one time. We are paid Rs 30, for each sack that is loaded, and on an average can carry one cartload up to a distance of two kilometers.' As supplies are transacted on a daily basis, the cart pushers are never idle. They are known to the shopowners by name and make their rounds at fixed shops, knowing that they would receive custom from them. A close bon homie therefore has grown between shopkeeper and cart pusher and these cart men find a corner





Shashi Prabha Gupta, a spice dealer in the market

of the shop for resting in between loads, at the shops who patronize their services.

Besides cart men offering speciality services to the shop owners, there are commission agents for spices who have their premises in the same market. Like the shop owners, agents like Shatrughan, for instance, continues his trade as a family business that he inherited from his father. He specializes in speciality spices, and offers condiments that are used for flavourings in several curries, savouries and sweetmeats, known in common parlance as 'garam masala'. We learn that the garam masala spice, is not a single product but consists of pepper, cumin, nutmeg, cardamoms of both the green and black variety, cloves, cinnamon, dried mango powder

and saffron. While all these items are sold as single items in the retail shops elsewhere, for the composite garam masala powder, it is small quantities of the spices that are mingled and merged together.

When asked about the places from where his exotic ingredients for the garam masala are procured, he rolls off a long list of countries and states from where his stocks are imported or bought. The black cardamom is obtained from Assam and Arunachal, but the small variety is from the south. Of course, all the pepper needed comes from Kerala and the best dried mango powder is from Nizamabad in Telengana, as it does not change its cream colour after aging. 'So if one wants to make the garam masala at home



Spices packed in a godown

one will have to visit four shops at the least to get all the ingredients', he envisages.

Added to this list of flavoured spices which are from India, are a number of other spices used in this mixture that comes from abroad. 'If one wants a flavourful garam masala then one must use cloves imported from Indonesia or Sri Lanka. The cinnamon sticks that we use in the powder are from China and Vietnam and the saffron is best when it comes from Spain, although our Indian variety, grown in Kashmir, is just as fine. Even the nutmeg and mace is not from India but comes from abroad,' he adds.

Another contrast that one notices at this shop is the lack of the usual hustle and bustle that one notices in shops elsewhere. Being a commission

agent, we learn that most of his business is carried on telephonically, or by mail. 'It takes two months on an average for a procurement to land at my shop and my clients in India are other shopkeepers who prefer to make bulk purchases of the ingredients and make their own brands of garam masala. The pricing of their wares depends on the amount of imported ingredients they have included in their mixture, and I have no control over that process,' explains this third-generation businessman.

Unlike him, shopkeeper Umesh Gupta, prefers to restrict his work to the bulk sales of everyday spices. Like several of his neighbours he is the third generation of spice sellers in the area. It was his grandfather who had purchased the premises in 1950, and set up shop on the ground floor, in a

1200 sqft space. The ground floor was made into the business centre and equipped in the typical pattern with an inviting takhat, covered with a white sheet over a mattress, that allowed the shop owner to relax when business was sluggish, during the afternoon hours, in the summer.

Above the shop front we have the storage area for the spices and on the upper floor my grandparents resided, but today, with all the families moving out, we too, have our residence in a different part of town.'

For sellers like Umesh who deal in the commonly used spices, there is a cyclic calendar which controls their business transactions. 'We prefer to buy our spices at the time when they are harvested in the fields. We have enough storage space for it. The specialty masalas that customers ask for, are generally sold in Delhi and Bombay and demands for the same from elsewhere is quite uncommon.' Hence for this shopkeeper and his fellow shop owners, spice buying involves traveling throughout the country at different times. Also, websites have come up that inform them of sale details from farmers, easing the method of running business. 'The arrival of turmeric in the market is in the month of February. Most of us get our bulk supplies then. In April, is the harvest of cumin and coriander seeds and corresponds with the onset of summer. Purchases of these items being from around this belt, begins by end February, and continues all through March,' he shares.

Even the bulk sales of spices follows a calendar. Though the regular sales seldom differ much, the marriage season plays a huge role in upping sales of spices, we learn. Winter sees a large chunk of purchases being made as weddings are quite common during that time. Also, the festival months of October, November and December, sees a spurt in sales for obvious reasons. The rest of the year, sales are as per the consumption in the kitchen.'

But shopkeepers in Khari Baoli have an interesting preoccupation during times when sales are slump. The place has now found preference as a tourist attraction among visitors to the old city and large groups of foreign visitors, accompanied by their guides, mill around the area, eager to find out more from a willing shopkeeper, who takes pride in not just acquainting them with his wares but also in supplying information about the many uses of spices and the like. These visitors usually come from Spain and from the UK as also from other former colonial countries where the smell of Indian curries lingers on their palates from their days at home. While most of them are familiar with the common spices, many of them have not set eyes on items such as 'makhana' or foxnut, or nigella seeds among others, and are curious to know more about its usage.

As they take in the views their eyes invariably stray towards the architectural details of the marketplace and passersby are quick to fill them in with the details. It is common knowledge among the residents, that despite its somewhat rundown looks, the structure of the market is built on solid foundations. 'It is the strongest building of the Red Fort area,' vouch the residents and going by the fact that one does not see any cracks or seepage in the area, one is likely to be convinced about this belief.

More than its structure, it is the lived-in looks of the place that seems inviting to the visitors. As each shop front is wide open, it is not unusual to see the owners walk into each other's shops for a cup of tea and conversation or even for assistance in locating a particular website on the net. Thus the entire spice market gives off an aura of familiarity, not just among themselves, but even to the visitors who pry them with questions which they are ever willing to answer. Khari Baoli definitely lives up to its reputation of being able to spice up ordinary lives with their wares.



Indian Spices: Origin, Cultivation and Processing

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India is the land of many species of rare spices since time immemorial. The hill tracts of the South Western coast of the Indian peninsula which comprised the southern parts of the Western Ghats is the chief producing centre of the of the wild spices since many centuries ago. Pepper, ginger, cardamom, turmeric, clove and nutmeg were the prominent spices available in the evergreen and deciduous forests of the hilly tracts of Malabar coast. The entire forest region parallel to the sea coast of the South-Western part of India was known as Malabar. At least by BC 2000 traders from many parts of the world including Greece, Rome, China and the Gulf region collected these spices from the Malabar coast and Indian spices became an essential commodity in the international spice market.

The spice crops are best grown in regions located in 600-1500 m above main sea level. Pepper occupied an important position among the spices exported from the Malabar coast even during the reign of the Ptolemies of Egypt. Europeans had many misunderstandings regarding the production of various spices. They were very curious to know how black and white pepper were made available on the Malabar coast for the European markets. One of their main misunderstandings was that pepper would not grow in Europe because peppercorns were burnt in the Malabar coast and then sent to Europe. They did not know about

the preparation of black and white pepper until Jeronimo de Santo Estevam, a native of Genova dispelled the myth in 1499, by explaining the method of cultivating pepper and preparation of black and white pepper.

Pepper

Pepper is one of the earliest known spices in India. It was the most valuable spice available in the forests of Malabar and later the cultivators produced many varieties of pepper in their homestead gardens. The scientists almost confirmed that pepper originated in the jungles of the Western Ghats of the Malabar region. Later it spread to other parts of India and other countries like Indonesia, Malaysia, Sri Lanka and Brazil. It was Europeans who dispersed pepper to other countries. Pepper is botanically known as *Piper nigrum* and black pepper is the dried unripe fruit of a perennial climbing vine. As the 'King of Spices' India's pepper is of the finest quality and superior to those produced in other important pepper producing countries in the world. Nowadays, more than 90 per cent of pepper production in India is from homestead gardens and the main buyers of Indian pepper are Americans, Russians, Canadians and people of European countries. In India, pepper cultivation is concentrated in Wayanad, Kannur, Kozhikode, Kottayam, Ernakulam and Trivandrum districts of

Kerala, South Canara, North Canara and Coorg districts of Karnataka and Kanyakumari district of Tamil Nadu.

There are more than 73 different varieties of pepper cultivated in our country. The most common varieties of pepper in Malabar are Kalluvalli, Balankotta, Kottavalli, Karinkotta, Cherukodi and Uthirankotta. On the other hand the pepper varieties cultivated in Travancore were Karimunda, Karimundi, Narayakodi, Kuthiravali, Kaniakadan, Valiakanikkadan, Perumkodi and Kottanadan. Among these varieties, the most hardy and drought resistant item is Kalluvalli. Balankotta is predominantly bisexual and a regular and high yielder. The most promising varieties in Travancore-Cochin area are Karimunda and Kaniakkadan. In the Coorg and Mysore region of Karnataka, Malligasara, Doddigya, Arisina and Moratta, are the prominent and high yielding pepper varieties preferred by the growers.



Pepper Plantation



Pepper Spikes in Pepper Plants

Pepper is a plant of the humid tropics. It requires a heavy rainfall, high humidity and warm climate for its growth. Normally, pepper thrives best on virgin land rich in humus content and other plant nutrients. Clay loams are best suited for pepper cultivation, but in India it is extensively grown on red loams and sandy loams overlying the lateritic

hilly regions of Western Ghats, especially Kerala. Besides, well drained red lateritic virgin soil and alluvial soil in slopping lands are also highly suitable for growing pepper. Slopes facing north and north-eastern sides insulate and protect the pepper vines from the severe southern sun. An annual rainfall of over 250 cm. is necessary for its successful cultivation. It can be grown from almost sea level up to an altitude of 1200 meters. Pepper tolerates a minimum temperature of 10°C and a maximum of 40°C.

Pepper is generally reproduced vegetatively from cuttings taken from runner shoots originating from the base of the vines. Shoots suitable for preparing cuttings for planting should be collected from selected high yielding and healthy vines. Cuttings from lateral fruiting shoots at the top portion of the vines may also be used for planting. Vines raised from such cuttings start bearing from the second and third year. Robust shoots of the selected vines are kept coiled and these shoots are severed from the vine at the time of planting and cut into lengths of four to five nodes and planted close to the support trees. As the rooted cuttings climb up in the support trees they should be tied with thin rope and this operation should be continued for some years till the vines get established firmly on the support tree. At a younger age pepper vines need shade during the hot summer period, which should be removed in the monsoon season by lopping the branches of the support trees, as the shade will affect the productivity.



Labourers Harvesting Pepper

Since the last few decades, pepper farmers initiated a better method for planting of rooted cuttings instead of planting the cutting direct in the agricultural fields. In the new method, rooted cuttings are raised by planting shoots of four node length first in soil filled plant baskets or polythene bags with perforations. Normally planted cuttings will take three months to strike root and establish well in the plant baskets or polythene bags. Then the farmers will remove the polythene bags and rooted cuttings will be planted in the agricultural fields close to the support trees. Pepper vine needs support trees for its growth. Farmers are using many types of trees such as Murik, Muringa, Kilinjil, Anjili, Payyani, Silver oak, Coconut, Arecanut and so on as support for pepper plants. Murik (*Erythrina indica*) is the most popular pepper support tree all over Kerala. The farmers choice of support trees are influenced by availability, ease in planting, speedy growth, timber value, and relative ease for climbing pepper stands.

Irrigation, manures, and plant protection are the major inputs used for pepper production. Since pepper is a rain-fed crop, the scarcity of water will adversely affect the yield as well as health of the vine. So, during the summer months irrigation of pepper is desirable. One or two light rounds of digging every year is necessary for the better growth of the plant. The digging is usually done around the vines to a diameter of 1.5 to 2 meters to remove the weeds. Manuring is necessary to prevent the depletion of soil fertility and consequent decline of yield. Organic manure, especially cattle manure, or compost should be applied once or twice in a year for better crop, just before the south west monsoon. Farmers are also applying fertilizers like muriate of potash (100 gm.), ammonium sulphate (500 gm.), superphosphate (1 kg.) per vine annually.



Drying of pepper in drying yards under sunlight

The vines flower in May-June and it takes six to eight months to ripen the berries. Fully ripened berries become bright orange or red. The season for harvesting mature berries is from January to March every year. Harvesting is done by plucking the whole spike when one or two berries on the spike turn bright orange or red. The spikes are spread on the bamboo mat of the threshing floor to separate the berries from the spikes. The berries are separated from the spikes by trampling then under feet. After the removal of the empty spikes, the berries are then dried in the sun for 7 to 8 days until the outer skin of the berry become black. The fully dried black pepper will be shrunk in size and assume the characteristic wrinkled appearance of black pepper. This type of quality black pepper is exported by India to other parts of the world.



Black Pepper



White Pepper

Another kind of pepper is white pepper which is chiefly prepared in Coorg and some parts of Kerala and white pepper fetches a premium price in the international market. White pepper is prepared from mature pepper berries by removing the red outer skin and the pulp below it. Spikes with fully ripened berries are collected, filled in gunny bags and steeped in flowing water for about 6 to 7 days. The soft outer skin of the berries is then removed by rubbing in the water. The peeled berries are then cleaned by washing with fresh water. The cleaned seeds are dried on the floor till they become white in colour. The produce is further cleaned by winnowing and then polished by rubbing with cloth. White pepper is mainly produced by large scale farmers because the small scale pepper farmers can't afford the cost of making white pepper. The export of white pepper is insignificant when compared with black pepper, from India.

Long Pepper

Long pepper is a very unique spice both used as condiment and an ayurvedic medicine. The botanical name of this spice is *Piper longum*, sometimes called Indian Long Pepper. Locally known as *Pippali*, Long pepper was grown earlier in the tropical rain forests of India. Now it is cultivated in Konkan and Malabar coast, Eastern Bengal, North East India, Ceylon and Indonesia. This is a close relative of black pepper and hotter in taste. It is a slender aromatic creeper with perennial woody roots and fleshy fruits embedded in spikes. Gol tippali of West Bengal,

Pipalnansori of Maharashtra, Asli and Suvali of Assam and a new variety Vishwam developed from Kerala Agricultural University are the main varieties of long pepper cultivated in India.



Long pepper plant



Spikes of Long pepper

Long pepper thrives under cool shade with considerable humidity and a good supply of water. The best soil for the pepper is clay loam, rich in organic matter. Farmers cultivate long pepper as an inter crop along with other plantation crops like coconut, arecanut, coffee, cardamom and orange. It is propagated by suckers or rooted vine cuttings. After land preparation vine cuttings and suckers are transplanted with the beginning of the

monsoon rains. The proposed land for cultivation should be ploughed two or three times and leveled properly. Raised beds of size 3m x 2.5m are prepared with proper drainage channels to drain excess rain water from the plantation site. Then pits are dug at a distance of 60 cm x 60 cm and dried cow dung or farmyard manure is applied in the pit. Normally two rooted cuttings or suckers with roots are planted in each pit usually in the months of June and July.

Normal irrigation must be given once in a week in summer and regular weeding should be done in the beds. It is necessary to give mulch with dry leaves or straw in hot summer. If the crop is irrigated in summer it continues to produce spikes and off-season production will be available. Since the crop will give economic yield for 3 years, long pepper needs heavy manuring. It requires cattle manure, farmyard manure and compost along with normal chemical fertilizers. Twenty tonnes of cow dung or farm yard manure are required for one hectare of land.



Dried Long pepper

The vine starts bearing spikes after six months of planting. The spikes thus will be ready for harvest after two months since the formation of spikes. Spikes are harvested normally in the month of January. Then the spikes are dried under the sun till they turn grey. The dried spikes are stored in moisture proof containers. The yield of dry

spikes in the first year is around 400 kg/ha. and it will increase upto more than 1000kg./ha. in the third year. Moreover, the plants without spikes are cut and dried for producing Piplamol. There are three grades of Piplamol. Long pepper is mainly used for medicinal use in the market. In ayurveda, all diseases of respiratory tracts viz. cough, bronchitis, asthma etc. are treated with medicines prepared with long pepper. Besides, the medicine prepared with long pepper is also used for treating obesity, stomach ailments and rheumatoid arthritis.

Ginger

Ginger, botanically known as *Zingiber officinale* is another significant spice of international fame from India. It is a herbaceous perennial herb and the rhizomes of which are used as spice. India is the most leading producer of ginger in the world and during 2012-13 the country produced 7.45 lakh tonnes of spices from an area of 157839 hectares of land. Kerala state is one of the leading producers of ginger in India along with Karnataka, Orissa, Assam, Meghalaya, Arunachal Pradesh and Gujarat.

Many varieties of ginger are cultivated by the farmers in different parts of the country. The prominent indigenous cultivars of ginger are 'Maran, Rio-de-Janeiro', Kurumpumpadi, Himachal, Eranad, Wayanad and Nadia. In the local markets green ginger is mainly used for vegetable purposes. Rio-De-Janeiro, China, Wayanad Local and Tafengiya varieties are suitable for green ginger use. Rio-De-Janeiro is preferable for extraction of oleoresin. Dry ginger and its various by-products are chiefly exported to foreign countries. The ginger items suitable for dry ginger are Maran, Wayanad, Manantoddy, Himachal, Valluvanad, Kuruppampadi, IISR-Varada, IISR-Rejatha and IISR-Mahima.



Ginger plantation



Ginger rhizomes after harvesting

The plants are propagated by small divisions of the rhizomes. Ginger is a tropical plant adapted for cultivation even in regions of subtropical climate such as the high ranges. Ginger thrives best in well drained sandy loam, clay loam, red loam and lateritic loam. It grows well in a warm and humid climate both under rain fed and irrigated conditions. A moderate rainfall at the time of the planting is essential for the speedy and healthy sprouting of ginger rhizomes. For the successful growing of the crop well distributed showers during the growing period and dry weather for about a month before harvesting are necessary. It is not desirable to grow ginger in the same field year after year, because continuous ginger cultivation will lead to rhizome rot disease and nematode infestations.

In the beginning, the proposed land is to be ploughed or dug thoroughly 3 to 4 times at the

receipt of pre-monsoon showers. The next step of cultivation is the preparation of the soil bed of 1 m. width, 30 cm. height and 3 to 4 m. length. Between two soil beds 50 cm. space is essential for planting, weeding and other activities in the ginger beds. Ginger is propagated by small pieces of rhizomes known as seed rhizomes. Very small pits will be prepared for the planting seed ginger rhizomes on the beds. Healthy and disease-free ginger rhizomes preserved earlier are cut into small pieces, each having one or two buds for planting. The pieces of seed rhizome are placed in shallow pits prepared with small hand hoes and covered with well decomposed cattle manure and a thin layer of soil suitably levelled. Application of neem cake at a rate of 2 tonnes per hectare at the time of planting helps reduce various crop diseases.

Immediately after levelling the bed, mulching is essential for ginger cultivation. Mulching the beds with green leaves or organic wastes is necessary to prevent erosion of soil from the beds. Mulching also helps add organic matter to the soil, checks weed emergence and conserves moisture in the ginger beds. Along with green leaves, dried coconut leaves and dried paddy straw also can be used for mulching. Immediately after weeding, application of fertilizers and earthing up, are necessary for ginger cultivation. Since ginger is a rain-fed crop, it is cultivated in the less rainfall areas as an irrigated crop. Ginger requires 1300-1500 mm water during its crop cycle. During germination, rhizome initiation and rhizome development stages systematic irrigation is essential for better production, otherwise it will lead to crop failure. If there is no rain during the time of planting, irrigation should be done as early as possible after planting and subsequent irrigations are given at intervals of seven to ten days using sprinklers or drip system of irrigation. Large scale farmers used to dig bore wells in the ginger fields for irrigation. During the period of heavy rain, proper drainage channels are to be provided to avoid the petrifying of rhizomes. Earthing up is essential to prevent exposure of

rhizomes to sun and provide sufficient soil volume for free development of rhizomes. It is to be done immediately after weeding and application of fertilizers.

The harvesting of ginger for vegetable purposes starts after four to five months of planting. The starting of the ginger harvest depends on the demand of the crop in the market. But ginger attains full maturity in 210-240 days after planting. The crop does not deteriorate even if it is left some more months under the soil. In harvesting, rhizome clumps are lifted carefully from the beds with a spade from the soil. The dry leaves, roots and soil adhering on the rhizomes are manually separated. In India, the internal market prefers fresh green ginger for cooking, while dry ginger is exported to foreign countries as a valuable spice. For making dry ginger, the matured rhizomes are harvested. Two varieties of dry ginger, bleached and unbleached, are produced for export purpose.

In the processing of ginger the most important criteria of selecting rhizomes are the fibre content, volatile oil content, and the pungency level. Peeling of rhizomes to remove the outer skin and sun drying are the two stages of ginger processing. The peeling of matured rhizomes is done by scraping the outer skin with a knife and bamboo splits. After careful peeling to avoid the reduction of oil content the peeled rhizomes are washed before drying. The normal dry ginger so produced is known as unbleached ginger, usually produced in India. Generally, ginger is sun-dried till the moisture content is brought down to 10 per cent for its safe storage. Bleached ginger is produced by dipping the scrapped fresh ginger in a slurry of slaked lime followed by sun drying. The dipping in lime water continues until the ginger rhizomes become uniformly white in colour. Bleached ginger is less susceptible to the attack of pests during storage and shipping.



Drying of ginger under sunlight



Dried ginger

Turmeric

India is a leading producer and exporter of turmeric in the world, which is used as seasoning, drug, cosmetic and dye all over the world. Turmeric is botanically known as *Curcuma longa* and it belongs to the family of *Zingiberaceae*. Andhra region, Kerala, Tamil Nadu, Karnataka, Orissa, West Bengal, Gujarat and Assam, are the important states producing turmeric. It can be grown in diverse tropical climates under rain fed or irrigated conditions. The popular turmeric varieties available in the country are Duggirala, Sugandham, Salem, Amalapuram, Tekkurpet, Allapetty and Muvattupuzha. During 2013-14, the country produced 12.29 lakh tonnes of turmeric from an area of 2.34 lakh hectares.



Turmeric cultivation



Green turmeric

For the cultivation of turmeric, healthy and disease-free split rhizomes are used as seed. The land for cultivation is thoroughly ploughed and with the receipt of pre-monsoon showers soil beds of convenient length are prepared with spacing of 50 cm. between beds. Then, small pits are made in the bed using a hand hoe to plant seed rhizomes. Pits are filled with dry cattle manure or compost. Seed rhizomes are placed over it and then covered with soil. The crop is to be mulched immediately after planting with green leaves or paddy straw. After three months weeding, application of fertilizers, and earthing up should be done before next mulching. Apart from farmyard manure or compost, inorganic fertilizers are applied in turmeric cultivation. Weeding has to be done at least thrice after planting depending upon weed intensity. In the case of irrigated crops, depending upon climate,

irrigations are to be given once in three days. Turmeric can be grown as an intercrop in coconut, arecanut and pepper plantations. Turmeric plantation is prone to many diseases and attack by pests. Leaf blotch, leaf spot, leaf blight, rhizome rot are the major diseases affected to turmeric which severely reduce the production. Besides, Nematode pests, Shoot borer and other minor pests also attack the crop and the farmers are managing these diseases through applying various pesticides.



Dry and polished turmeric

Like ginger, the turmeric crop is ready for harvest in nine to ten months depending on variety and climate. When the leaves are turned dry or yellowish in the beds, the farmers harvest the crop manually. In manual harvesting, the turmeric clumps are carefully lifted with a spade and the rhizomes are cleaned by hand. After harvesting, rhizomes for seed purpose are stored in well ventilated rooms covered with turmeric leaves and the rhizomes for market are prepared through various processing operations like boiling, drying and polishing. Boiling involves cooking of fresh rhizomes in water until the rhizomes become soft. Then the cooked rhizomes are dried under the sun and it may take 10 to 12 days to become completely dry. The dried turmeric has poor appearance with scales and root bits. The appearance is improved by smothering and polishing the outer surface by manual or mechanical rubbing. The colour of the processed turmeric influences the price of the produce.

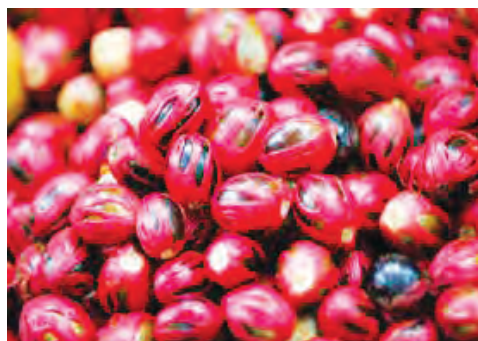
Hence, to obtain an attractive product, turmeric powder is sprinkled during the last phase of polishing. Indian turmeric is considered to be the best in the world market.

Nutmeg and Mace

Nutmeg is a significant spice which belongs to the family of *Myristicaceae*. It is botanically known as *Myristica fragrans*. Though nutmeg originated in Indonesia, later it became one of the leading spices in India. Nutmeg produces two separate spices, namely nutmeg and mace. Nutmeg is the dried kernel of the seed and mace is the dried aril surrounding it. Both spices are strongly aromatic, resinous and pungent in taste. It is commonly used for seasoning foods, Nutmeg is mainly used in sweets and mace in spicy dishes. This culinary spice is also utilized in perfumes and medicines. Nutmeg is mainly cultivated in the north and central districts of Kerala and parts of Kanyakumari and Tirunelveli districts of Tamil Nadu.



Nutmeg Tree



Nutmeg kernel with mace

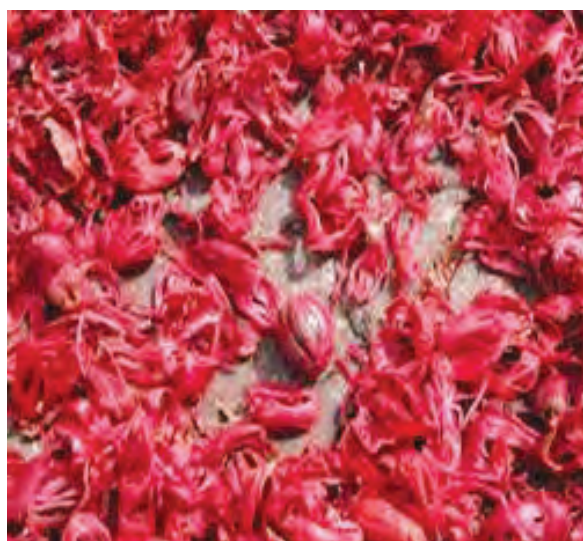
Nutmeg thrives in a warm, moist climate, in well drained soil with partial shade. Nutmeg trees require year-round water, but water logged conditions are not suitable for nutmeg cultivation. Areas with clay loam, sandy loam and red laterite soils are suitable for nutmeg cultivation. IISR Viswashree is the common variety of nutmeg used by the farmers for cultivation. It is propagated through seeds. As nutmeg is cross pollinated, it requires both male and female trees for pollination and fruit set. Fully ripened tree-burst fruits are selected for raising seedlings. An important problem of nutmeg cultivation is the segregation of seedling into male and female plants. Due to this problem 50% of the nutmeg trees become unproductive male trees. To overcome this shortfall Nutmeg seedlings are produced through grafting. Grafted stems are planted in polythene bags and kept in shaded places. Grafts with healthy sprouts are planted in the fields after 12 months.

Planting of nutmeg starts in the beginning of the rainy season. Medium sized pits are dug with sufficient spacing for the planting of nutmeg. The pits must be filled with organic manure and soft soil 15 days before planting. In the planting field a male graft has to be planted for every 20 female grafts in the field for the convenience of pollination. Proper shade from the burning sun is very essential for the successful production and protection of trees. Nutmeg can best be grown as an intercrop in coconut plantations in Kerala. In the hot summer months irrigation is imperative for the success of nutmeg cultivation. Manure is applied in shallow trenches around the plants. Both cattle manure and chemical fertilizers like urea, superphosphate and muriate of potash are applied periodically. Nutmeg fruits are available throughout the year. Usually nutmeg trees begin to start bearing fruits from the sixth year. When the plant becomes mature the production capacity of the tree increases. When fruits are fully ripe, the nuts split open. Fruits are normally plucked from the trees and nutmeg and mace

were dried for use in food and preparation of derivatives.



Nutmeg without mace



Mace

Clove

Clove is an aromatic, dry, fully grown, but unopened flower bud of a tree in the family of *Myrtaceae*, botanically known as *Syzygium aromaticum*. Though clove was a native product of Indonesia, it was an important spice grown in the hilly tracts of Kerala, Tamil Nadu and Karnataka. Clove trees grow upto 8-12m tall and it grows well in rich loamy soils of the humid tropics and red soils of the midlands of Kerala and many

parts of the hilly terrains of the Western Ghats. Well distributed rainfall at the time of planting and flowering is the essential climate for clove, but it cannot withstand water logged situations. Zanzibar, Penanag and Amboyna are the main varieties of clove trees cultivated in India.



Clove tree



Clove buds

Seeds from fully ripened fruits are used for raising seedlings. These 'Mother Seeds' are allowed to ripe fully on the tree and drop down naturally. These seeds are soaked in water and used for sowing in nurseries. Soil beds with sand mixture of convenient lengths are to be prepared for sowing seeds. The germinated seedlings are planted in polythene bags filled with soil, sand and cowdung mixture, and kept in shade. After more than one and a half years of growth in the polythene bags, the matured seedlings are transplanted in the agricultural fields. Too much

wild growth in the area proposed for raising clove is not suitable for cultivation. Immediately before rainfall, pits filled with compost, green leaf and cattle manure are prepared and seedlings in the polythene bags are transplanted in the main field during the beginning of the rainy season. Cloves are also planted as an intercrop in coconut and arecanut plantations.



Drying clove under sunlight



Dried clove

At the beginning of the rainy season organic manures are applied in the shallow trenches dug around the trees. Cattle manure, bone meal and fish meal are mainly applied as a single dose yearly. Inorganic fertilizers like urea, superphosphate and muriate of potash are applied according to the growth of the trees. Clove trees start flowering from the fourth to fifth year of planting, under good caring. The full bearing of clove starts by about the 15th year only. Regular watering is necessary in the early years of clove cultivation and adult plants also require water for better yield and quality of clove. By the end of the flowering season unopened buds are harvested when they start to turn into a pink colour. At this time the unopened buds are two centimetres long. The opened flowers are not valued as spices.

Clove harvesting is a careful procedure and it done without damaging the tree branches. After harvesting the flower buds are separated from the clusters and spread for drying. The correct stage of drying is reached when the stem of the bud is dark brown and the rest of the bud light brown in colour. Well dried cloves are only one-third the weight of the original clove.

Cardamom

Cardamom, botanically called *Elettaria cardamomum* is one of the oldest and unique spices in world. The place of origin of cardamom is considered as the forests and hill tracts of the Western Ghats of South India. It is popularly known as 'Ilaichi' and mainly cultivated in Kerala, Karnataka and Tamil Nadu. Cardamom is commercially cultivated for its dried fruits also called capsules, which is also referred to as cardamom of commerce. Generally cardamom cultivars are divided into three i.e., Mysore, Malabar and Vazhukka, on the basis of the nature of panicles and shape and size of capsules.



Cardamom plantation



Cardamom capsules

Cardamom thrives well in regions which receive moderate annual rainfall of 1500-2500 mm with a mean temperature of 15° C to 35° C and 600-1200m above the sea level. Forest loam soil which is generally acidic in nature is the best for the plantation of cardamom. The most popular varieties of cardamom under cultivation by the farmers of Western Ghats are Njallani, Vander cardamom, Palakuzhi, Panikulangara No. 1 and so on.

Propagation of cardamom is mainly through vegetative means using cardamom suckers. Cardamom seedlings are also produced by using seeds and employing the method of tissue culture. But the popular method of reproduction is through vegetative methods. Large scale multiplication of high yielding varieties of cardamom is generally arranged in clonal nurseries. Planting units consist of a grown-up tiller with a portion of the rhizome with developing shoot. In the planting units trenches with a width and depth of 45 cm. with humus rich soil, sand and compost, are prepared for the production of planting suckers. Nurseries are arranged usually near the perennial water resources and properly shaded to protect the plants from direct sunlight. Cardamom suckers for final planting will be ready within 10 to 12 months of planting in the nursery.



Preparation of cardamom seedlings



Cardamom cleaning: Munnar, Kerala

Another method of producing cardamom seedlings is from fresh capsules. Fully ripened, disease-free bold capsules are collected from healthy plants in the second and third harvesting. The chemically treated seeds will be sowed in the beds made of sandy soil and mulched with grass or paddy straw for uniform germination. Watering the beds regularly to maintain moisture and once sprouting is observed the mulch will be removed from the beds. In the next stage seedlings are transplanted to new beds or polythene bags for 8 to 10 months before planting in actual cultivation fields.

Normally, 15 to 18 month old seedlings are used for planting in agricultural fields. Before planting the cardamom seedlings farmers raise shade trees in the proposed sites. Farmers plant fast growing shade trees like Dadap (*Erythrina lithosperma*), Karuna (*Vernonia arborea*), Chandana Viambu (*Toona ciliata*), Njaval (*Syzygium cumini*), Jack Tree (*Atrocarpus heterophyllus*) to protect the seedlings from direct sunlight. Seasonal shade regulation by pruning and lopping the branches is essential for a balanced canopy in the cardamom plantations. The pits of size 45 cm. X 45cm. X 45 cm. are prepared for planting and these pits are filled with one-third of topsoil, decomposed farmyard manure and compost for the quick growth of the suckers. After this preparation, with the commencement of the monsoon, planting is done. While planting 50g. neem cake and rock phosphate are applied to the pit. After

planting the seedling base needs to be covered with suitable mulching material.



Cardamom after drying



Cardamom seeds

Proper irrigation is the most essential part of cardamom cultivation, especially during the months between January to May. Plants may be irrigated at an interval of 10 to 15 days till the onset of the monsoon. Sprinkler irrigation is the best for cardamom plantation. Hand weeding and mulching facilitate the sudden growth of healthy cardamom in the hill tracts. The principal pollinating agent in cardamom is the honey bee. Maintaining one or two bee colonies per acre during the flowering season is recommended to increase pollination, promoting fruit set and production of more capsules. Various types of fertilizers and organic manures are applied. Before applying fertilizers, the plant basin be

demulched and panicles are coiled. For yielding plants soil-cum-folier application is an effective method of fertilizer application. Organic manures, like cowdung, compost, vermicompost, neem cake and bone meal are applied periodically. Rock phosphate and muriate of potash are the two important fertilizers used in cardamom cultivation. Cardamom is prone to many types of diseases like fungus, virus and small pests. Nursery leaf spot, capsule rot, rhizome rot, leaf blight, mosaic disease, necrosis diseases, capsule borers, hairy caterpillars and so on, are the main diseases that require a lot of disease management techniques, including the spraying of pesticides.

Cardamom plants start bearing two or three years after the planting of seedlings or suckers. The ripe capsules are harvested within a period of 120-135 days when they attain physiological maturity. Mature capsules are distinguished by the dark green colour of the rind and black coloured seeds. Harvested capsules are first washed to remove soil and other dirt. The next stage of harvesting is drying of the capsule. In natural drying, capsules are dried under the sun for a period of five to six days. Here there is a risk of not accomplishing the proper drying because of weather changes. So, farmers prefer flue curing. In this method firewood-based curing houses with a furnace are prepared. Inside the curing houses capsules are spread in drying racks. Hot air generated by burning firewood is circulated through the flue pipes till the cardamom capsules are correctly dried. Temperature inside the curing chamber is maintained at 65°C for about 24-30 hours. Through this method of curing high quality green colour cardamoms can be obtained. After drying, capsules are polished by rubbing the capsules in a hot state against a hard surface. Finally, cardamom is marketed after grading capsules on the basis of quality. Other costly products of cardamom having high demand in the local and foreign markets are cardamom seeds, cardamom powder and cardamom oil.

Cinnamon

Cinnamon is one the oldest known spices in the Western Ghats and is mainly cultivated for the dried inner bark of the tree. Botanically called *Cinnamomum verum*, this is naturally seen in the forests of the Western Ghats and commercially cultivated in Kerala, Tamil Nadu and Karnataka. The dried inner bark of this tree is not only used as a spice but also used as an antioxidant. As a hardy plant, cinnamon tolerates a wide range of soil and climatic conditions. Since it is mostly raised as a rain-fed crop, an annual rainfall of 200-250 cm. is ideal. Navashree, Nithyashree, Konkan, Tej and Yercaut are the prominent commercially cultivated varieties of cinnamon. On the basis of high regeneration capacity, high bark recovery Navashree is the best recommended type of cinnamon for all the regions in India.

The propagation of cinnamon is by rooted cuttings, air layerings and seedlings. Semi-hard wood cuttings of about 10 cm. are planted in polythene bags and the cuttings root in 45-60 days. Air layering of cinnamon is done on semi hard wood shoots. The well rooted air layers are separated from the mother plant and bagged in polythene bags. The rooted cuttings and layers are planted in the field with the onset of the rains. Besides, seeds separated from fully ripened cinnamon fruits are sown in sand beds or polythene bags for preparing seedlings. After six months of growth inside the shade the seedling will be planted in the field. Cinnamon is planted in the monsoon season for the establishment of seedlings. The pits for planting cinnamon is filled with compost and top soil before planting. In the initial years plants are provided with partial shade for healthy and rapid growth of plants.



Cinnamon Trees



Extracting of Cinnamon Bark



Cinnamon bark



Cinnamon bark oil

The farmers conduct two weeding and digging of the soil around the bushes, in a year. Both organic and natural fertilizers are provided to the plants in two equal doses annually. Cinnamon tree is generally coppiced from the fourth or fifth year of planting at a height of about 10-12 cm. from the ground. Coppicing is repeated for every side of shoot from the main stump, so the plant will assume the shape of a low bush and it is suitable for peeling. Shoots having 1.5 to 2.0 cm thickness and brown in colour are ideal for bark extraction. The removed barks are dried first in shade and then sunlight for three to four days. During the drying, the bark contracts and becomes the shape of a quill. The smaller quills are inserted into larger ones and formed compound quills for sale. Cinnamon powder, cinnamon leaf oil, cinnamon bark oil is a sought-after quality product from the cinnamon tree. In addition to culinary use, leaf oil and bark oil are used in the manufacture of perfumes, soaps, tooth pastes, hair oils and for flavouring liquor.

India had retained top position in the production and export of many spices in the world since time immemorial. Earlier, spices were collected from the forests but the demand for Indian spices in the international market resulted in the large scale and systematic spice production by the farmers. The Western Ghats region of peninsular India was not only the provenance of many unique spices, but also the main centre of production of spices nowadays including pepper

and cardamom. Finally, through the export of spices, India is earning crores and crores of rupees in the form of foreign exchange.

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Spice is Our Way of Life.

Amrita Pratap

Spice derives its name from the Latin root *Species* which means a sort or a kind. From antiquity India was regarded as the Spice Bowl of the World. Hindu scriptures viz, the *Vedas*, the *Sushruta Samhita*, the Epics *Ramayana* and *Mahabharata*, Kautilya's *Arthashastra*, Panini's *Ashtadhyayi* and Vatsyayana's *Kamasutra* have numerous references to the importance, use and benefits of spices. From religion to tradition, from medicine to magic, from preservation to consumption, spices have been omnipresent in Indian civilization always. The mere mention of Spices or *Masale* conjure images of an infinite variety of natural plant products like seeds, roots, rhizomes, bark, leaves, stems, buds, berries, flowers, fruits, vegetables arils and resins, cultivated across the different regions and climates of the Indian subcontinent, all of which form an integral part of our culinary traditions.

As taste enhancers, the most popular spices used in endless combinations in Indian cooking are cumin, poppy, caraway, coriander, mustard, fennel, fenugreek and nigella seeds, green and black cardamom, cloves, cinnamon, black pepper, asafoetida, nutmeg, mace, bay leaf, tamarind, ginger, garlic, mint, red and green chillies, to name only a few. A variety of functional and aesthetically appealing implements for processing them were devised in different materials like wood, bamboo, metal, terracotta and stone. The use of winnowers for cleaning and drying them, slicers for cutting them, measures for measuring them, hand grinders for grinding

them, mortar and pestles for pounding them and finally containers for preserving their freshness, resulted into whole or pounded, fresh or roasted, chopped or ground, wet or dry spices.

Used as ingredient, seasoning, colouring or sprinkling, from the routine early morning tea, to fresh juices and salads, curries and desserts, sweets and savouries, chutneys and pickles, the subtle aromas of exotic spices came to flavour all our foods, raw or cooked, regular or gourmet. Many spices with their antiseptic, antimicrobial, antibacterial and antifungal properties, in a warm climate like ours act as natural preservatives preventing moulds and bacteria, which destroy the nutrition of several stored foods, especially fish and meat.

The medicinal properties of spices which make our food healthy and heal maladies made them an intrinsic part of traditional Indian pharmacopoeia. The regular consumption of vitamin and mineral-rich spices nourishes and sustains the human body by aiding digestion, cleansing the body toxins and building tissues. The most popular Indian spice oils used in Ayurvedic therapies, include cinnamon bark oil for lowering blood sugar, clove oil for toothaches, coriander seeds for digestion and liver conditions, ginger and garlic as anti-inflammatory and pain relievers, turmeric as antioxidant, anti-scarring and anti-tumoral blood cleanser, nutmeg as anti-parasitic and a mental tonic.

Spice oils and extracts also make cosmetics and perfumes nourishing and fragrant, yield beautiful dyes and powerful aphrodisiacs and are also said to be a potent talisman to avoid the evil eye. The auspicious *Tilak* to anoint a forehead divine or human, dyeing garments and altar cloths, making of *Prasad* or offerings for Gods, ritual use in most ceremonies associated with birth, marriage and death and in almost all festive cooking, spices form a vital part of Indian life.

From time immemorial therefore like gold, their attributes made them extremely valuable and popular. Traversing both land and sea routes, notwithstanding the hazardous journey, invaders and traders alike descended on our rich tropical soil pursuing a highly lucrative spice trail. Despite their being expensive, so great was their demand, that they practically changed the course of world history.

Today, their overriding aroma wafting from our well-lit modular kitchens revive a lot of nostalgia of our cherished childhood days, where dark smoky kitchen shelves were lined with sealed wooden and metal containers and boxes, which preserved the freshness of a variety of spices. The flavours and aromas of spices result from their compounds or oils which evaporate or oxidize, when they come in contact with air. Different spices are added at different stages of cooking, so that the food absorbs their flavours properly. Thus varied magical delicacies worked by the nimble fingers of our mothers and grandmothers which cast a spell on us, evolved simultaneously the distinct regional kitchens of India. The predominance, absence or combination of particular spices and techniques produced a vast array of mouth watering dishes with incredible textures and flavours, contributing to the great culinary tradition of India.

India is the largest producer of spices in the world today with its total output of approximately 6 million MT annually according to the Spices Board of India data for financial year 2015-16. Spices therefore play a leading role in India's national economy. The Spices Board of India undertakes the promotion of Indian Spices through providing inputs on policy matters to the central government, besides quality control and certification. It plays a major role in their exports by documentation, dissemination of trade information and participation in major international fairs and food exhibitions. India occupies a formidable position in World Spice Trade with its total exports of 8,43,255 tons of spices valued at Rs 16238.23 crores and (US \$ 2482.83 million) in the financial year 2015-16. Registering a compound annual growth rate of 14%, both quantity and value wise, India has exceeded its target of 8,08,000 tons, valued at 14014.00 crore (US \$ 2260 million) in this year. This achievement is actually 104% in terms of volume, 116% in terms of rupee and 110% in terms of dollar value. Over 3700 registered Exporters, export around 180 varieties of whole spices, oleoresins, spice oils, mint products, curry powders and pastes, to over 160 countries. The major importers of Indian spices are the U.K., USA, UAE, China, Vietnam, Indonesia, Germany, Sri Lanka and Saudi Arabia. The Spices Board aims to make India an international processing hub of spices and a premier supplier of high quality spices and herbs in both the domestic and international markets.

The Indian Institute of Spices Research (IISR), headquartered in Kozhikode, Kerala, focussing on sustainable means of production, relentlessly strives to develop high quality spice varieties, with high yield, harnessing traditional, modern and novel biotechnological methods.





Sp.1 The scenic Western Ghats nestles extensive spice plantations on its verdant lush green terraced slopes, where ample sunshine, shade and rains, nourish stately trees, luxuriant creepers and thick shrubs. The rich moist soil developed carefully and painstakingly over the years, yields a vast array of exotic spices.



Sp.2) Picturesque mustard fields—The North Indian plains also contribute a variety of spices to the Indian platter.



Sp 3. Variety is the spice of life—India is a leading producer, consumer and exporter, of spices.



Sp. 4 In all their forms whole or ground spices form an integral part of Indian life.



Sp 7. The Pepper Vine—*Piper Nigrum* or *Gol Mirch* or the black pepper berry changed the course of history and heralded the European Age of Discovery, rivalry and conquests.



Sp9. Spice is the way of life—A Masala Seller in Trivandrum, Kerala.



Sp8. The prides of Indian kitchens—spices were stored in beautiful wood and metal containers.



Sp10. A Ginger or Zinziber Officinale factory in Cochin, Kerala.



Sp11. Spices an integral component of food form a regular part of Indian snacks and savouries.



Sp12. No festivity or celebration is complete without spicy curries and pickles.



Sp13. An essential element of herbal beauty products.



Sp 14. Several spice extracts and oils form important ingredients of Indian traditional Ayurvedic medicated therapies.

Cultural and Political Meanings of Pepper during Pre-Modern Period

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This paper looks into the way pepper got different cultural meanings and political connotations in different cultural contexts in which it was produced, processed, refined, exchanged as gift, presented and consumed. Though material culture studies focus more on manufactured objects, this paper tries to see how the process of physical production of value to pepper, enabled it to be studied as a material object. It also looks at the changing cultural meanings of pepper, its life-story, and also looks at the way pepper used to create different networks and identities at different cultural contexts, depending upon the meanings it used to generate in its interaction with multiple local cultures. In the process of its circulation, pepper used to generate multiple meanings in multiple contexts. It was because of its mobility through different cultural worlds that it was able to create a wide variety of meanings. The meanings of pepper at times used to change from one cultural context to another. As any object has a life-story, pepper too, has got a life-story of its own, though the way pepper was produced in bulk and the way pepper was consumed, used to give the impression that it was impersonal and without a history of its own.¹

I. The Cultural Story of Pepper—Pepper comes to us in different forms, as powdered pepper, black pepper, white pepper, pepper oil, or half-powdered pepper. In pre-Modern times pepper was

not an object of uniform meaning and value. Not only the changing physical forms of pepper, but also the geography, the soil-content, the region and the locality where pepper was produced and the timing of its harvest and processing decided the value difference.² As Igor Kopytoff says things could not be fully understood at just one point of their existence. Instead, the processes and cycles of production, exchange and consumption should be looked into as a whole³ and this long chain of processes go into the biography of objects. The life-history of pepper starts with a long chain of human actions, including identification of suitable terrain (often forest land or virgin land), with slopes, which allows water to flow down without causing water-stagnation, clearance of land and soil-preparation, cutting of platforms along the sloppy terrains, planting of supporting stems with reasonable distance from one another in such a way that each plant gets sufficient sunlight, and then planting of the right type of pepper plants beneath each stem. As early as 1290s, Marco Polo had observed that pepper was cultivated in Quilon in Kerala in plantations.⁴ *Karimunda*, which gives 3-5 kilogram pepper per vine was the most cultivated variety of pepper. Its yield used to depend on the routine care extended to the plant, which made the farmer visit his pepper-farm almost everyday, checking the physical condition of pepper vines, and if the pepper vines had fallen down from the supporting stem because of wind or excessive rainfall then

they were to be tied to the supporting stem with care with soft tying materials, without hurting the tender plant. There often used to evolve a rhythm and pattern in the everyday life of pepper-cultivators, as conditioned by the processes and requirements of pepper-cultivation. He also had to visit his pepper-farm for periodical cutting of the branches of supporting trees for the purpose of allowing sufficient sun-light to reach the pepper-plants, which used to increase the productivity-level.⁵ The pepper-landscape and the regularity of exercise around pepper plants used to create a certain amount of pattern and rhythm in the everyday life of the pepper-cultivators, stamping on them certain traits and marks of identity. The timing of marriage in the households of pepper cultivators, the timing of the celebration of church festivities or temple festivities in spice-producing enclaves, the purchasing of new gold ornaments for the members of the household, fairs, buying of new cows etc., depended on the timing of the pepper harvest, that used to happen usually between mid-December till mid-February.⁶ Pepper was also used as a part of the rituals performed in connection with the church festivities of these months and pepper-corns along with roasted rice were offered as *nercha* (offertory) at the time of veneration a saint's statues during their festal days falling in these months.⁷

Pepper used to create a certain type of economic and cultural rhythm and pattern for the pepper-cultivators not only at the individual level alone but also at the locality and community levels, as well. It created a distinctive network of relations and notions of power around pepper and the concentrated and intense cultivation of pepper in Vadakkenkur kingdom, fetched for it the distinctive identity of being the pepper kingdom, which in Portuguese language was called *reino da pimenta* and its king got pepper-related identity, viz., *rey da pimenta* (the king of pepper). This was a kingdom which comprised the most important pepper growing regions of central Kerala like Pala, Kuravilangadu, Thodupuzha, Muvattupuzha and Piravom, located

between the river systems of Manimalayar and Muvattupuzha.⁸ Though a variety of pepper like Aimpirian, Balankotta, Arakkulam Munda, Karimunda, Kalluvally, Kottandan, Kuthiravally, Narayakodi and Neelamundi, were cultivated in this region in different degrees, Karimunda which yielded 3-5 kilogram per vine, was the most cultivated variety in this region. Over a period of time there was a process of removing other varieties of pepper plants one by one in favour of Karimunda recasting the final pepper landscape of this region.

The pepper-bunches, plucked from the pepper-vine, were threshed so that the pepper-corns might be removed from the "thread" and the pepper-corns were then dried on bamboo-mats in open sunlight, which causes the peel of the green pepper-corns to get dried up with wrinkles. The exposure to sunlight dries up the green pepper-corns and causes its colour to turn into black.⁹ Because of the long years of familiarization with the pepper, the pepper-cultivator or trader could often touch and feel the pepper-corns and tell with exactness the level and degree of their moisture content and whether they had been properly dried.¹⁰ The white-pepper was made by keeping the ripened pepper-corns (with red peel) together for a few days and then they were washed to such a level that the peel of the pepper-corns would get completely removed. Such pepper-corns without peel have got white colour and they continue to have white colour even after their 'drying' on bamboo-mats in open sunlight. White pepper was produced by the delicate processes whereby the peel of the pepper-corns were removed and it fetched more value and was sold in the market at a higher price than black pepper.¹¹ The higher quality pepper had higher demands in the local and international markets. However there were also inferior quality pepper which was plucked between the months of August-September before getting ripened and it was dipped in boiling water so as to get the black colour for the peel of the pepper-corns and was later dried with the help of smoke and ash.¹² Similarly pepper that was obtained from sandy

soil was small and was inferior in quality.¹³ There was a huge value difference between pepper that was obtained from pepper gardens and the pepper that underwent processing of refinement, including removal of the skin and conversion of red/green pepper into white pepper, or into pepper oil and spirit. Thus, physical production of value to pepper was done by its further quality-updation, sophistication and diversification, which involved the process of refashioning its meaning of quality.

Pepper, in the course of its circulation, used to fetch for itself different types of identities and layers of meanings in different geographies and cultural contexts through which it used to travel. Pepper from the Pepper kingdom (Vadakkencur) used to merge into pepper from other production centres of central Kerala by the time it reached Cochin and then it moved to Lisbon with the identity of 'Cochin pepper'. It was different from the Chengannoor pepper, which had an entirely different identity. It was cultivated by the St. Thomas Christians of this locality and was made available in the local markets between September and January.¹⁴ However, Cochin pepper had almost evolved as a brand name with its unique quality and features, which made it different from the pepper from Chengannoor or from the Canara ports of Honawar, Barcelor and Mangalore. In 1619, the bishop of Cochin wrote that the pepper from Cochin was better in quality and cheaper in price than the pepper from Canara.¹⁵ But in Lisbon, at *Casa da India*, pepper from Malabar and Canara got merged together as to acquire the common identity of Indian pepper. Meanwhile, in the process of pepper circulation over Europe through the different channels of trade, the traders and commercial intermediaries participating differently in its movement began to acquire an identity connected intrinsically with pepper, which fetched for them the surname of "Pfeffer" (pepper) in Central Europe, particularly among the traders associated with the pepper transactions of the Thuringian Company at Leipzig, Germany. Elector Augustus of Saxony, who tried in vain to conduct direct trade with

India in pepper from 1576 onwards, finally got a chance to obtain a regular annual supply of 8000 quintals of pepper from Konrad Rott, the German pepper contractor from Augsburg, and thanks to their negotiations the Thuringian Company of Pepper Trade was established by the Elector in Leipzig in 1579, for distributing pepper to Germany, Hungary, Bohemia, Poland, the Netherlands and the Baltic states.¹⁶ In the border areas of Germany, Austria and Hungary (and also in Poland), which were actively involved in the pepper trade of Thuringian Company, there were many families with the surname of "Pfeffer". At every hub the pepper movement, it used to create new identities for the people involved in circulation; some times inscribing new layers of identities and deleting old layers of its life-story. Thus the Indian pepper which the Venetians supplied to South German cities were viewed as a 'Venetian commodity',¹⁷ which perception used to delink it from the actual place of its origin and other cultural contexts through which it circulated, with different meanings.

II. Historical Trajectories—The entry of pepper in the heartland of the Roman empire from the first century AD on, is evident from the narration of its medicinal properties in *Materia Medica* written by Dioscorides (AD40-90).¹⁸ It is highly probable that the six parcels of cargo exported in one single ship from Muziris to Alexandria around 180 A.D, about which mention is made in *Vienna Papyrus* discovered in 1985, and whose value was estimated to be 1154 *talents* and 2852 *drachmas*,¹⁹ must have been pepper. The discovery of remnants of 16 pounds of peppercorns from Bernice²⁰ points fingers to a relatively larger volume of pepper trade happening between the ports of Kerala and Alexandria via Bernice. It should also be mentioned that pepper formed one of important cargo mentioned in the list of 54 items in the third century by Roman jurist Aelius Marcianus (and later included in the Roman law "The Digest" of Justinian) as coming from India.²¹

A lot of passages in early Tamil literature refer to the trade in pepper *with yavanas*, a word which

at that point of time though denoted generically foreigners, specifically meant Greek or Roman commercial intermediaries.²² We find references to the *Yavanas* coming with gold and wine in their ships and returning with pepper.²³ Strabo estimates that about 120 vessels were plying between Roman Egypt and India per year,²⁴ out of which half were visiting Lymrike (Kerala) for collecting pepper.²⁵ *Purananuru* gives a detailed account of the pepper that was brought to the Chera port of Muziris for further transshipment to overseas markets. The passage runs as follows:

".....Sacks of pepper, piled beside the building become confusing on the bustling sea front. Articles of gold brought by sea vessels are carried to the shore by boats in the estuary. Products of his (Chera's) mountains and products of his seas, he brings together to bestow on his visitors, with toddy like a river, the gold mount Kuttuvan, his noisy Muziris throbs as the Ocean".²⁶

The ever increasing demand in the Roman world for pepper for culinary and medical purposes made Pliny write:

"It is quite surprising that the use of pepper has come so much into fashion, seeing that in other substances which we use, it is sometimes their sweetness and sometimes their appearance that has attracted our notice; whereas, pepper has nothing in it that can plead as a recommendation to either fruit or berry, its only desirable quality being a certain pungency; and yet it is for this that we import it all the way from India! Who was the first to make trial of it as an article of food".²⁷

Later, even the Germanic invaders and rulers in their attempts to emulate the food habits and culinary traditions of the Roman elite and rulers as cultural devices to enhance political and social standing also had by this time developed a taste for spices from Kerala and the Visigothic king Alaric demanded in 408 that 70 sacks of pepper should be given to him as a part of the ransom of

Rome.²⁸ As early as 540 AD Cosmas Indicopleustes had referred to Male (Malabar) as the place 'where pepper grows' and gives a detailed botanical description of pepper,²⁹ which also suggests the existence of a relatively organized mode of pepper cultivation in Kerala during such a remote past. He refers to five marts of Male³⁰ which export pepper: Parti(?), Mangarouth (Mangalore),³¹ Salopatana (Chaliyampattanam, an important source of pepper trade till recently),³² Nalopatana (Dahbatan or Dharmapattanam, another prime centre of pepper trade till the 20th century) and³³ Poudopatana (Puthupattanam or present day Pattanam?).³⁴ This was the time when the Byzantine emperors Justin (518-527) and Justinian (527-565) wanted to break the Sassanid hold on Indian trade by seeking the support of Abyssinian (Ethiopian) Christians, who were asked to go to the markets of south India and Ceylon to fetch spices, including pepper, for the markets of Constantinople.³⁵

At a time when western Europe was moving towards increasing feudalization, ruralisation and isolation of human habitats with equally increasing devaluation of money and paucity of coins, pepper became a common commodity that interconnected the scattered enclaves of Europe, because of its augmented use as medicine, seasoning stuff and food preserving/ flavouring material. The Germans had to even pay a pepper tax in several of their cities including Speyer, Köln and Zürich. Very often this pepper-tax was imposed on the consumers.³⁶ As early as AD 973 pepper was found in the markets of Mainz in Germany along with ginger, cloves and spikenard, as is testified by Tartusi, a member of a Moorish legati that went to see Otto the Great.³⁷ Very often various spices, including pepper, cinnamon and incense, were traded and exchanged as gifts in German ecclesiastical and commercial centres during the medieval period. The annual requirement of the monastery of Corbie during this period was 120 pounds of pepper. The demand for pepper in the monastery was relatively high when compared to the other spices, like ginger (70 pounds), cinnamon (15

pounds) and cloves (10 pounds) required in the monastery.³⁸

By the eleventh century when long-distance trade got revived, pepper from Kerala formed a major commodity that fetched immense profit for the merchants. Pepper that the Jews linked with Cairo Genizza purchased at the price of five *dinars* per sack in Kerala in 1097³⁹ was sold at the value of 135 *dinars* in Cairo⁴⁰ and 130 *dinars* in Maghreb.⁴¹ With the increase in profit from pepper trade, there was our augmented process of pepper-cultivation in the hinterland. In 1346, when John Marignoli visited Quilon, he referred to it as the place where the whole world's pepper was produced and mentioned that the St. Thomas Christians of Quilon were the principal cultivators and proprietors of pepper.⁴² In central Kerala this community evolved as specialized cultivators of pepper. In 1529, the Portuguese authorities of Cochin wrote to their king in Lisbon that all pepper was in the hands of the St. Thomas Christians and that a majority of the pepper that went to Portugal from Cochin was sold by them.⁴³

III. Pepper as Medicine and Changing Cultural Meanings—Pepper has been used as an inevitable ingredient in Ayurvedic medicines for most of the diseases stemming as evil effects of *vatha*, *pitta* and *kapha*. Black pepper, often known in Chinese as Hu Jiao, was an important ingredient in the traditional Chinese medical practices for warming up the stomach and spleen and for treating vomiting, diarrhea, and abdominal pain due to cold invading the stomach. In 1545 about 12-15 Chinese junks used to take pepper from Cochin and South East Asia to Ming China.⁴⁴ In Germany, pepper was used as a common medicine. In the German city of Köln, which had a population of 30,000,⁴⁵ there were 45 shops selling 91,342 pounds of pepper during the period between 1452 and 1459.⁴⁶ However during the period between 1460 and 1468, the volume of pepper (in 43 shops of the city) for sale increased to 111,499.5.⁴⁷ The study of Margaret Wensky shows that about 13.3% of the total pepper trade of this German city was conducted by women.⁴⁸ During

the period between 1470 and 1480 the number of shops selling pepper in Köln increased to 49.⁴⁹

The expansion of consumerial habits around pepper is indicated by the increase in the number of pepper shops and volume of pepper made available for sale in this central European city. This was the time, when different cultural perceptions used to get circulated in Europe about pepper, particularly about the reason why and how pepper got medicinal properties. These cultural perceptions were circulated in a way that was strongly appealing to the popular imagination of the times. The letter of Prester John refers to the perception about the way pepper is believed to have acquired medicinal properties. According to this letter, the pepper was grown in the forest, which was guarded by snakes. Since the forest was infested with venomous snakes, the pepper harvest could not be done directly by anybody. So people used to burn down the forest till all the snakes were destroyed. In the fire, all the snakes in the forest would be killed; however the pepper-corns falling down from the burning trees were resistant to the fire and they used to get mixed up with the poison of the dead snakes. It was believed that the mixing up of pepper-corns with the venom of the dead snakes gave healing powers to pepper and made it capable of curing diseases and making women fertile. Such pepper-corns were collected and dried in sun light. They were then "cooked according to a secret method and then ground into a flour" for using as medicine.⁵⁰

With the circulation of new stories and imageries about pepper, appealing highly to popular imaginations, the pepper flow in Europe also got augmented as a commodity of trade. The central European towns that earlier used to obtain pepper from the German business house of *Fondaco dei Tedeschi*, which was established in Venice in 1228,⁵¹ started banking upon the Great Society of Ravensburg⁵² and the German merchant families of the Fuggers, the Welsers, the Höchstetters, the Herwarts (Augsburg), the Vöhlins (Memmingen), the Imhoffs and the Hirschvogels (Nürnberg) in

the fifteenth century for obtaining pepper to sell in retail shops.⁵³ However, Indian pepper then used to reach their hands mainly via Venice, which used to import about 5 to 7 million pounds of spices during the period between 1496 and 1498. Out of it one-fourth was estimated to be pepper.⁵⁴

IV. Political Significance of Pepper—Pepper evolved as an object with political significance, when it turned out to be the most 'sought after cargo' in the fast expanding consumer world of Europe and Asia against the background of its increasing use as medicine and food preserving/ flavouring stuff. Moreover, its long stories of travels from the place of origin to the various points of consumption, carrying fascinating meanings of exoticism and healing powers, not only helped to enhance the social status of the consumers, but also stimulated and facilitated the movement of a variety of cargo from various regional economies for the purpose of procuring this most sought-after commodity. As pepper was the prime mover in many markets, capable of generating demands for a variety of other cargoes as return wares for pepper at different hubs of its circulation, it was able to generate a certain amount of clout and power at such hubs of its movement, ultimately facilitating and strengthening the process of centralization of political authority that used to interfere in and control the movement of pepper. Control of the course of pepper-flow enabled such rulers to control the course of wealth-flow, either as liquid money or as value-intense return cargo, which in turn conveniently facilitated them to convert the mechanisms and devices for controlling the pepper flow into integral mechanisms for their power play. We find that the Mamluks declaring pepper to be a royal monopoly in 1428,⁵⁵ put ultimately a control on the nature and course of pepper-flow, which in fact made him institute a system of licence, controlling its movement. For all practical purposes it contributed to his ability to control its circulation and augmented his power to interfere in matters of trade, ultimately increasing the weight of his power.

The Portuguese, who declared pepper royal monopoly in 1520,⁵⁶ instituted a long set of control mechanisms like *cartaz*-armada-fortress and *cafila* as to check and control the course of pepper flow.⁵⁷ The militarization of Portuguese fortresses, the confiscation of cargo and the drowning of indigenous vessels under the guise of checking the *cartaz* and the regular coastal patrolling by the Portuguese fleet, which formed the major power components of the Portuguese *Estado da India*, became inevitable for controlling the course of pepper-flow to their advantage. In that sense, pepper, or better, their efforts to protect the royal monopoly trade in pepper, provided justifiable reason to the Portuguese to institute a network of power devices and authority-markers in the areas that challenged their pepper monopoly. The various instruments of power and coercion were made to evolve around pepper and the trajectories of its circulation so that the Portuguese ruler who tried to control pepper-movement might accrue much weightier power and stronger ability to dominate for the purpose of implementing monopoly. Almost the same pattern was emulated by the Travancorean ruler Marthanda Varma, who declared the pepper trade a royal monopoly in 1743, whereby in the name of controlling the movement of pepper for protecting his monopoly rights, he used his fighting force to control the various spice-producing enclaves that he had been then attaching one by one to Travancore through his chain of northern conquests during the time between from 1742 and 1752.⁵⁸ The instruments of power that he instituted to protect his monopoly rights over pepper at the hubs of pepper-procurement, transportation and distribution became the major stamp and marker of his power and the identity of the state authority for the people at different levels of his kingdom. In these cases, pepper had evolved almost as a political symbol, with the help of which the authority of the ruler, who wanted monopoly control over pepper, was intimately stamped and made visible to the people and anybody who dealt with it, contrary to the intentions of these rulers, was perceived to be operating against their very authority.

The increasing convergence of pepper flow at maritime centres of exchange from the production centres for overseas trade made some rulers of Kerala shift their political bases to these nodal centres of maritime trade in pepper. The most important among them was the transfer of the royal residence of the chief of Nediyirappu *Svarupam* from the inland pocket of Nediyirappu in Ernad (Malappuram District) to the maritime trade center of Calicut, which the chief captured from the ruler of Polanadu, evidently with an eye on bagging from the pepper trade.⁵⁹ On reaching Calicut the chief of Nediyirappu *Svarupam* came to be known as Zamorin, whose political ascendancy as the prime ruler of Kerala was decided mainly by pepper and the return from its trade. Meanwhile another local chief also started moving from an inland agrarian space to the maritime exchange center of Cochin, which emerged in 1341 following the great flood in Periyar.⁶⁰ It was none other than the chief of the Perumpadappu *Svarupam*, who was moving from Vanneri down to south to escape from the attacks of the Zamorin. First he moved over to Mahodayapuram (Cranganore), from where he proceeded further to Cochin around 1405,⁶¹ and the pattern of his movement clearly suggests that his shifting of capital from Vanneri to the maritime trade centers (at first to Mahodayapuram and later to Cochin) was necessitated not only by the conquests of the Zamorin alone, but also by his deeper desire to appropriate profit from maritime trade in pepper for the purpose of building up a strong state structure that could counter the expansionist moves of the Zamorin.⁶² Obviously he was bagging a significant amount of wealth as returns from the trade and the customs revenue that the king of Cochin received from the pepper trade in Cochin was 60,000 *pardaos* in 1605, which increased to 80,000 *pardaos* by 1612.⁶³ The nature of power formulations in Kerala was then shaped mainly by the nuanced processes stemming from politics over pepper.

Pepper also was used as a political agency to negotiate between rulers and find solution to contesting issues. While settling the Spanish

claims over Moluccas, stemming from Spanish entry in the region following Ferdinand Magellan's voyage, negotiations between Portugal and Spain were initiated through the agency of pepper. The political importance of pepper got significantly vital in 1526, when King John-III of Portugal had to give pepper worth 9,00,000 *cruzados* on the occasion of the marriage of his sister, Isabella, with the Spanish emperor Charles V. According to the matrimonial negotiations between the two crowns, the amount of money was to be paid in three instalments of 50,000 quintals of pepper to the Spanish ruler at the Portuguese factory of Antwerp.⁶⁴ This was over and above the amount of 3,50,000 *cruzados* that the Portuguese crown gave to the Spanish crown to settle the Moluccan issue.⁶⁵

V. Economic Meanings of Pepper—The Portuguese documents of the initial decades of the sixteenth century refer to the volume of pepper trade in Calicut and Cochin, which were the major pepper ports of then Kerala. Initially, the Portuguese used to take from the pepper port of Cochin about 1,04,920 kgs. of pepper (1501),⁶⁶ which increased to 30,000 quintals by 1505/6,⁶⁷ whose value was around 79,800 *cruzados* in Malabar. However in Portugal it fetched for them 6,60,000 *cruzados*⁶⁸ and the difference out of this transaction was 580,200 *cruzados*.⁶⁹ Though this cannot be considered as the actual profit, as one has to deduct out of it the transportation cost, protection cost and other costs of risks to get the exact figure of profit, it indicated tentatively the nature of profit that the Portuguese used to bag on an average basis. In 1506, the Venetian ambassador Vincenzo Quirini estimated that about 25,000 to 30,000 quintals of spices, out of which 90% was pepper, were exported from Cochin, Cannanore and Quilon.⁷⁰ Cá Masser, another Venetian estimated it to be 35,000 quintals.⁷¹ The volume of pepper taken from Cochin to Lisbon in 1509 was 40,000 quintals.⁷² Affonso de Albuquerque writes in 1512 that he was sending to Lisbon 38,000 quintals of spices from Cochin.⁷³ In 1516, the pepper export from Calicut was 10,20,249 kgs.⁷⁴ The five ships

that left Cochin in 1518 carried 50,000 quintals of pepper besides a large quantity of ginger and other spices.⁷⁵ However, by 1519, pepper export to Lisbon from Cochin increased to 56,000 quintals, while the export of other types of spices rose to 20,000 quintals.⁷⁶ During the first hundred years after the entry of the Portuguese in India, spices formed a major item of maritime trade so much so that it could rightly be called "the century of spices".⁷⁷

Here it should also be said that in 1520s, the pepper taken from Cochin to Europe formed only 40% of the total pepper produced in Kerala. The Portuguese documents estimate that the total production of pepper in the 1520s was 16,000 *bhars*⁷⁸ (i.e., 26,69,280 kilograms), out of which the Portuguese managed to take only about 20,000 to 30,000 quintals of pepper annually to Lisbon.⁷⁹ This formed only 40% of the total produce of pepper. Out of the remaining, about 5,00,490 kilograms i.e., 19% of the total produce went through the ghat-routes to Coromandel ports and 25% for trade in different Asian markets including the ports of Persian Gulf and Red Sea, while about 4,17,075 kilograms i.e., 16% of the total production was used for domestic consumption.⁸⁰ A great share of pepper thus circulating through these diverse ports finally moved through the medium of Marakkar traders of Malabar towards the Red Sea ports of the Ottomans and the markets of Saffavid Persia, rather regularly.⁸¹

In 1587, Ferdinand Cron, the commercial agent of the German mercantile houses of the Fuggers and the Welsers in Cochin, writes that about 3,00,000 quintals of pepper were produced yearly in India,⁸² which when compared with the figure of 1520s shows that there was an increase of 600% in pepper production in the hinterland of Kerala during the gap of 60 years,⁸³ which is also suggestive of the economic modification of the

hinterland on the basis of the huge demand from the circulatory processes in the Indian Ocean. The significant increase in pepper production is further supported by Francisco da Costa, who spent 35 years as the Portuguese official for pepper trade in Cochin, and according to his calculation the total production of pepper in 1603 was 1,00,000 *bhars* or 2,58,000 quintals.⁸⁴ Though pepper production increased in the hinterland by 600%, only 3.10% of the total produce went to Europe for trade by the end of the 16th century, while 15.50% was consumed domestically.⁸⁵ The remaining pepper, i.e., circa 81.40%, was transhipped to the markets of the Mughals, Ming China, Saffavid Persia and the Ottomans.⁸⁶ Despite the use of forces, the Portuguese could not appropriate control over spice trade, as the flow towards various Asian markets was much more than the volume that flowed to Europe. Even then, the pepper that the Portuguese obtained in *Casa da India* of Lisbon for the period between 1570 and 1592 came not through the Portuguese traders, but through the leading German and Italian business houses, who actually took up the contract to supply 30,0000 quintals of pepper from the production centres of Kerala and Canara and supply in *Casa da India* of Lisbon. The most leading merchant houses, bankers and financiers of the then Europe like the Fuggers, the Hirschvogels, the Welsers, and the entrepreneurs like Konrad Rott from Augsburg, as well as Giovanni Rovellasca from Milan, jumped into the contract trade in pepper, supplying pepper from India in Lisbon, and then from Lisbon distributing it all over Europe, as they realized that by participating in the pepper trade, they could easily get connected with other commodity markets and thus they could get their business interconnected and integrated across Europe and Asia.⁸⁷

In the seventeenth century when the Portuguese and the Dutch were competitively trying to procure pepper from the various ports of Malabar,

we get a picture of increasing supply of this cargo for these European powers for dispatch to Asian and European markets. In 1626 the Zamorin offered about 3000 *candis* of pepper from Calicut to the Dutch at the price of 28 *realen* per *candi*.⁸⁸ During the same period the Portuguese managed to procure 11,11,228 kilograms of pepper from Cochin.⁸⁹ The volume of the pepper trade of the Dutch from Cannanore was 96,717 Dutch Pounds in 1668, which increased to 119,411 Dutch Pounds in 1672. It was 134,672 Dutch Pounds in 1681, and 692,917 Dutch Pounds in 1700.⁹⁰ In 1671, the Dutch port of Galle in Ceylon received 974,400 Dutch Pounds of pepper from the various ports of Malabar.⁹¹ This tentatively shows the nature of trade happening at the major maritime trading centres of Kerala during the period between sixteenth and eighteenth centuries.

The forgoing discussions show that quite multiple were the ways by which pepper was understood in different cultural contexts. Pepper accrued a wide variety of meanings in different cultural contexts at different time periods, besides giving equally diverse identities and meanings to those associated with this commodity at various hubs of its circulation. There were cases, when pepper was loaded with particular symbolic meanings within the society of people who transacted on it, which made others link the identity of the former with pepper. It also acquired layers of political meanings in spaces where pepper was used as an agency to negotiate between power houses, or where pepper was made to become a political symbol, with the help of which the authority of the ruler who wanted monopoly control over pepper-flow was intimately stamped and made visible to the larger audience. The institution of a network of power devices and authority-markers in the areas that challenged pepper monopoly ultimately served to inscribe and cement the weight of centralized power and political control over such spaces much more intensely,

augmenting in return the scale and range of his authority. However it was the economic value of the pepper, which got every time augmented with inscription of new layers of (changing) cultural and political meanings to it, that used to prompt the pepper cultivators to stick to its production and move in the rhythm and pattern defined by its life-cycles of production.

References :

- 1 A detailed account on the various layers of meanings of pepper in the beginning of the seventeenth century was given by Francisco da Costa, "Relatorio sobre o trato da Pimenta feito por (...) escrivão da feitoria de Cochin," in Antonio da Silva Rego (ed.), *Documentação Ultramarina Portuguesa*, vol. III, Lisboa, 1963
- 2 Francisco da Costa says that pepper that was grown in sand was small and of inferior quality. *Ibid.*, p.88..
- 3 Igor Kopytoff, "The Cultural Biography of Things: Commoditization as Process" in A. Appadurai (ed.), *The Social Life of Things: Commodities in Cultural Perspective*, Cambridge, 1986, pp. 64-91; See also A. Appadurai, "Introduction: Commodities and the Politics of Value" in A. Appadurai (ed.), *The Social Life of Things. Commodities in Cultural Perspective*, Cambridge, 1986, pp. 3-63.
- 4 John Masefield (ed.), *The Travels of Marco Polo, the Venetian*, New Delhi, 2003, p. 377
- 5 The care with which the pepper-plants were nourished by the pepper-cultivators was elaborated upon by Francisco da Costa, "Relatorio sobre o trato da Pimenta", pp. 86-7
- 6 *Ibid.*, pp. 87-88
- 7 Even today pepper corns were offered along with roasted rice as *nercha* (offertory) to the devotees on the festal days.
- 8 Paduronga S.S.Pissurlencar, *Regimentos das Fortalezas da India*, Bastora/Goa, 1951, pp. 217-219; Vitorino Magalhães Godinho, *Les Finances de l'etat Portugais des Indes Orientales (1517-1635): Materiaux pour une Etude Structurale et Conjoncturelle*, Paris, 1982, pp. 306-8; Account of Francisco da Costa, in Antonio da Silva Rego(ed.), *Documentação Ultramarina Portuguesa*, vol. III, Lisboa, 1963, p. 310; Diogo Gonçalves, *Historia do Malavar*, edited by Josef Wicki, Münster, 1955, pp. 87-8
- 9 Francisco da Costa, "Relatorio sobre o trato da Pimenta", p. 87
- 10 *Ibid.*, pp. 89-90
- 11 *Ibid.*, p. 87
- 12 *Ibid.*, p. 87
- 13 *Ibid.*, p. 88
- 14 *Ibid.*, p. 88
- 15 AHU, *Caixas da India*, Caixa 6, doc. 33, letter of bishop of Cochin dated 14-2-1619

- 16 Konrad Haebler, "Konrad Rott und die Thüringische Gesellschaft", in Hubert Ermisch (ed.), *Neues Archiv für Sächsische Geschichte und Altertumskunde*, 16, 1895, pp. 185-190
- 17 Götz Freiherr Von Pölnitz, *Venedig*, Augsburg, 1949, pp. 95-6
- 18 Dioscorides gives the medicinal properties of other spices, as well, like cardamom, cinnamon, turmeric and ginger.
- 19 H. Harrauer and P. Sijpesteijn (ed.), "Ein neues Dokument zu Roms Indienhandel, P. Vindob. G. 40822", in *Anzeiger der Österreichischen Akademie der Wissenschaften*, phil.hist. Kl.122 (1985), pp. 124-155; These scholars suggested that the merchant *ego* must have pledged his own ship as security for the loan. However Lionel Casson says that the security was not a ship but items subject to the 25% customs duty on imports: *ego* had secured his loan from *tu* by pledging the goods he bought with that money. See L. Casson, "P. Vinod G. 40822 and the Shipping of Goods from India", in *BASP*, 23 (1986), pp. 73-79; See also G. Thür, *Hypotheken-Urkunde eines Seedarlehens für eine Reise nach Muziris und Apographe für die Tetarte in Alexandria (zu P. Vindob)"*, *Tyche* 2(1987), pp. 238-246; Lionel Casson, "New Light on Maritime Loans: P. Vindob G. 40822", in *Zeitschrift für Papyriologie und Epigraphik*, Band 84, 1990, pp.195-206.
- 20 Luigi Luca Cavalli-Sforza, Paolo Menozzi and Alberto Piazza, *The History and Geography of Human Genes*, Princeton, 1994.
- 21 A.H.M. Jones, "The Asian Trade in Antiquity", in *The Roman Economy: Studies in Ancient Economic and Administrative History*, Oxford, 1974,p.140; Grant Parker, "Ex Oriente Luxuria: Indian Commodities and Roman Experience" in *Journal of the Economic and Social History of the Orient*, vol. 45, Part I, Leiden, 2002, p. 42. The other important merchandise mentioned in it were iron, raw cotton, woven cotton, cloths etc.
- 22 *Akananuru*, 149, *Purananuru* 126, *Pattinapalai*, 185, 189
- 23 *Akam*. 149; *Puram* 56.343
- 24 Strabo, *Geography*, 2,118
- 25 Pius Malekandathil, "Ships, Navigation and Maritime Exchange Centres of Kerala: Channels of Civilizational Contacts, 100 B.C to 1500 A.D.", in *Summer Hill* (IIAS Review, Simla), vol.x, No.1 and 2, 2004, pp.42-55
- 26 *Purananuru*, 343: 1-10
- 27 Bostock and Riley (eds.), *The Natural History of Pliny*, London, 1890, Book XII, chap.xiv, pp.112-13
- 28 Donald F Lach, *Asia in the Making of Europe*, vol. I, *The Century of Discovery*, Book I, p. 21
- 29 J.W. McCrindle (ed.), *The Christian Topography of Cosmas, an Egyptian Monk, an Egyptian Monk*, Hakluyt Society, New York, 1897, p. 366
- 30 It is quite clear that 'Male' here stands for the larger geography of Malabar comprising the present-day Kerala. In Geniza papers we find reference to Malibarat. S.D. Goiteen, *Letters of Medieval Jewish Traders*, Princeton, 1972, pp.63-4. Even in the document from Rasulid s of Yemen Malibarat is mentioned See Elizabeth Lambourn, "India from Aden: Khutba and Muslim Urban Networks in Late Thirteenth Century India", Kenneth R. Hall (ed.), *Secondary Cities and Urban Networking in the Indian Ocean Realm, c. 1400-1800*, New York, 2008, pp. 72; 89-90. For the identification of these place names see also Pius Malekandathil, *The Germans, the Portuguese and India*, Münster: LIT Verlag, 1999, pp. 3-4
- 31 S.D. Goitein, *Letters of Medieval Jewish Traders*, Princeton: Princeton University Press, 1973, pp. 63-4. The Jewish merchant Abraham Yiju had a bronze factory at Manjruth (Mangalore). *Ibid.*, pp. 192-4
- 32 The identification of this place is done with the help of a document obtained from the Rasulids of Yemen, who used to give stipends in 1290s to the *qadis* and *khatibs* of various port towns on the west coast of India. Al- Shaliyat in this document is identified with Chaliyam. Moreover, Chaliyam has been a major centre for pepper trade all through history, which further strengthens my argument for its identification. See Elizabeth Lambourn, "India from Aden: Khutba and Muslim Urban Networks in Late Thirteenth Century India", Kenneth R.Hall (ed.), *Secondary Cities and Urban Networking in the Indian Ocean Realm, c.1400-1800*, New York, 2008,
- 33 The Jews and the Rasulids called it *Dahfatan*, which is identified as *Dharamapattanam* or Dharmadam located between Thalasserry and Kannur. For reference in Rasulid document see Elizabeth Lambourn, "India from Aden: Khutba and Muslim Urban Networks in Late Thirteenth Century India", pp. 70-2; 87-88. Dharmadam is surrounded by the Anjarakandy river on three sides and the region of Anjarakandy has been a major production centre of pepper in north Malabar till recently.
- 34 *Poudopatana* meaning new port town was a common nomenclature given to many newly emerging port-towns along coastal Kerala at different time periods. The Rasulid documents refer to *Bud*, which is identified with *Buddfattan* or *Pudupattanam* in north Malabar. However I think that *Poudopatana* mentioned in Cosmas Indicopleustes must be referring to a port-town located in the vicinity of *Cottanarike*, which was indicated as the major pepper producing region in Kerala in the written sources for the period between first century AD till fifth century AD. If we follow this argument, then the major port-town located in the vicinity of this land space was Pattanam, from where Persian artifacts of Sassanid period were recently unearthed on a considerable scale. This makes me identify Poudopatana as present-day Pattanam.
- 35 Procopius, *Wars*, I, 20; Muhammad ibn Jarir Tabari, *Annales*, p. 965; R. Pankhurst, *An Introduction to the Economic History of Ethiopia from early times to 1800*, London, 1961, pp.33-37. The Ethiopians (the Aksumite kingdom) who embraced Christianity around 300 AD. was considered as an integral part of the eastern Christian world. The St.Thomas Christians of Malabar and the Coptic (referring to Koptos, the old generic term for Egypt) Christians of Ethiopia had good commercial relations in the medieval period. These diversified channels of commerce led to the flow of Sassanid silver *dirham* and the Byzantine gold *nomisma* to the marts of Kerala.
- 36 Hilgard, *Urkunden zur Geschichte der Stadt Speyer*, Strassburg, 1885, p. 19; Friedrich Lau, *Entwicklung der kommunalen Verfassung und Verwaltung der Stadt Köln*, Bonn, 1898, pp. 67-8; Karl Dietrich Hüllmann, *Städtewesen des Mittelalters*, vol.I, Bonn, 1826, pp.29-35; Wilhelm Heyd, *Geschichte des Levantehandels im Mittelalter*, Vol. I, Stuttgart, 1879, p. 639

- 37 G. Jacob, *Ein arabischer Berichterstatte aus dem 10. oder 11. Jahrhundert über Fulda*, (2. Aufl.), Berlin, 1891, pp. 13ff.
- 38 Guérard, *Le polytyque de l'abbé Irminon*, Paris, 1844, vol. II, p. 336; Aloys Schulte, *Geschichte des mittelalterlichen Handels und Verkehrs zwischen Westdeutschland und Italien mit Ausschluß von Venedig*, vol. I, Leipzig, 1900, p. 73
- 39 In 1097 C.E. Joseph Lebdi purchased fifty sacks of pepper from Kerala at a price of five *dinars* per sack. S.D. Goitein, *Letters of Medieval Jewish Traders*, Princeton: Princeton University Press, 1973, p.180
- 40 Ibid., p.118
- 41 Ibid., p.122
- 42 Henry Yule and Henri Cordier, *Cathay and Way Thither*, vol. III, Nendeln, 1967, pp. 216-8; 248-254; 257
- 43 Antonio da Silva Rego (ed.), *Documentação para a Historia das Missões do Padroado Portugues do Oriente*, Vol. II, Lisboa, 1948, pp.175-6
- 44 ANTT, Corpo Cronologico, I, Maço 77, doc. 18; Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India, 1500-1663*, p.128. In 1290s Marco Polo refers to the nature of consumption of pepper at Kin-sai and also to the large scale import of pepper at Zai-tun. See John Masefield (ed.) *The Travels of Marco Polo, the Venetian*, New Delhi, 2003, pp. 297; 317
- 45 Rolf Sprandel, "Sozialgeschichte 1350-1500," in Hermann Aubin/Wolfgang Zorn (eds.), *Handbuch der deutschen Wirtschafts und Sozialgeschichte*, vol. I, Stuttgart, 1971, p. 375
- 46 Margaret Wensky, *Die Stellung der Frau in der Stadtkölnischen Wirtschaft in Spätmittelalter*, Köln, 1980, p.195
- 47 Ibid., p.205
- 48 Ibid., p. 197
- 49 Ibid., p. 210
- 50 Manuel Joao Ramos, *Essays in Christian Mythology: The Metamorphosis of Prester John*, New York, 2006, p.55; See also Zarncke, "Der Presbyter Johannes", *Abhandlungen der Königl. Sächs. Gesellschaft der Wissenschaften, Phil.Hist. Klasse*, VII, 1879, pp.827-1039
- 51 Götz Freiherr Von Pölnitz, *Venedig*, p.182; Götz Freiherr Von Pölnitz, *Fugger und Medici: Deutsche Kaufleute und Handwerker in Italien*, Leipzig, 1942, pp.16-17; 21
- 52 It was known as *Magna Societas Alamannorum*. See W. Heyd, *Die Grosse Ravensburger Gesellschaft. Beiträge zur Geschichte des deutschen Handels*, vol. I, Stuttgart, 1890
- 53 Pius Malekandathil, *The Germans, the Portuguese and India*, Münster, 1999, pp. 16-22
- 54 F.C. Lane, "Venetian Shipping during the commercial Revolution", in *American Historical Review*, XXXVIII, 1933, p. 228
- 55 R.s. Whiteway, *The Rise of Portuguese Power in Asia*, London, 1899, pp.7-8
- 56 Historical Archives of Goa, *Regimentos, Provisões e Alvaras*, no. 52027, fol.4ff
- 57 Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India, 1500-1663* (A Volume in the South Asian Study Series of Heidelberg University, Germany), New Delhi, 2001, pp. 147-150
- 58 Pius Malekandathil, "Winds of Change and Links of Continuity: A Study on the Merchant Groups of Kerala and the Channels of their Trade, 1000-1800 AD", in *Journal of the Economic and Social History of the Orient*, (Brill/Boston), Vol. 50, Part 2, 3/2007, pp.281-282
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- 60 W.W. Hunter, *The Imperial Gazetteer of India*, vol. IV, London, 1885, p.11; K.Rama Varma Raja, "The Cochin Harbour and the Puthu Vaippu Era", in *The Bulletin of the Rama Varma Research Institute*, No.2, Cochin, 1933, pp.49-51
- 61 A Sreedhara Menon, *A Survey of Kerala History*, Kottayam, 1967, pp.173-4; Ramesan Thampuram, *Gosri Rajavamsavali: Geneology of Cochin Royal Family*, Cochin, 1989, p.6; C. Achyuta Menon, *The Cochin State Manual*, Ernakulam, 1911, p.2; Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, pp.30-32
- 62 By the end of the fifteenth century, the Zamorin had already deprived the chief of the Perumpadappu svarupam of many stately rights including the right to strike coins and to roof his palace with tiles, which right he wanted to regain. Cf. Duarte Barbosa, *The Book of Duarte Barbosa: An Account of the Countries Bordering on the Indian Ocean and their Inhabitants*, tran. by Mansel Longworth Dames, vol. II, Nendeln, 1967, p.95
- 63 Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, p. 250
- 64 Damião Peres (ed.), *Historia de Portugal*, vol. III, Barcelos, 1928, pp.261-2; Joaquim Verissimo Serrão, *Historia de Portugal*, vol. III, Lisboa, 1978, pp. 36;42
- 65 Joaquim Verissimo Serrão, *Historia de Portugal*, vol. III, pp.37-8
- 66 This is the figure for 1501. See for details "The Anonymous Narrative" in William Brooks Greenlee (ed.), *The Voyage of Pedro Alvarez Cabral to Brazil and India*, London, 1938, p. 86; Luis de Albuquerque (ed.), *Cronica do Descobrimento e conquista da India pelos Portugueses: codice anonimo Museu Britanico, Egerton 20901*, Coimbra, 1974, p.25; Marino Sanuto, *I Diarii di Marino Sanuto: 1496-1533*, ed. by G. Berchet, R. Fulin, N. Barrozi, F. Steffani and M. Allegri, vol. IV, Venice, 1879, cols. 66-7; Rinaldo Fulin, *Diarii e diaristi Veneziani*, Venice, 1881, pp. 157-64; Wilhelm von Heyd, *Histoire du commerce du Levant au Moyen Age*, vol. II, Leipzig, 1886, p. 512
- 67 Vincenzo Quirini, 'Relazione delle Indie Orientali di Vincenzo Quirini nel 1506', in E Alberi, *Le Relazione degli Ambasciatori Veneti al Senato*, vol. XV, Firenze, 1863, p.12
- 68 The price of pepper per quintal in Malabar was 2.66 *cruzados*, whereas the price for the same weight of pepper in Lisbon was

- 22 *cruzados*. For details see Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, p. 285
- 69 In 1509 the volume of pepper taken to Lisbon from the spice ports of Kerala like Cochin, Quilon and Cannanore was 40,000 quintals, having the value of 106,400 *cruzados* in Kerala; however its value in Lisbon was 8,80,000 *cruzados*. This shows the magnitude of value of Kerala's trade at this point of time. However, during the period between 1510 and 1580 the volume of pepper-trade fluctuated: it stood between 15,000 and 20,000 quintals, whose market value was between 39,900 *cruzados* and 53,200 *cruzados* respectively in Kerala. Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, pp. 167; 179; 266
- 70 Vincenzo Quirini, 'Relazione delle Indie Orientali di Vincenzo Quirini nel 1506' in E. Alberi, *Le Relazione degli Ambasciatori Veneti al Senato*, vol. XV, Firenze, 1863, p.12
- 71 Cá Masser, 'Relazione di Leonardo da Cá Masser, alla Serenissima Repubblica di Venezia spora il commercio dei Portoghesi nell'India dopo la scoperta del capo di Bouna Speranza', in *Archivio Storico Italiano*, Appendice tom. III, Firenze, 1845, p.30
- 72 R.A. de Bulhão Pato (ed.), *Cartas de Affonso de Albuquerque seguidas de documentos que as elucidam*, tom.III, Lisboa, 1884, p.298
- 73 Ibid., tom.I, p.83
- 74 Pius Malekandathil, "Agrarian Production and Procurement Strategies in Malabar under the Portuguese, 1500-1663", in Yogesh Sharma and Jose Leal Ferreira(ed.), *The Portuguese in Coastal India in the 16th and the 17th Centuries*, New Delhi, 2008, p.26
- 75 A. Corsali in Giovanni Battista Ramusio, *Della Navigationi et Viaggi*, vol.I, Venetia, 1554, fol.188v
- 76 Gaspar Correia, *Lendas da India*, Coimbra, 1922, tom. II, part ii, p.559
- 77 Pius Malekandathil (ed.), *Indian Ocean in the Making of Early Modern India*, New Delhi, 2016, pp. 5-6
- 78 One *bhar* was equivalent to 166. 83 kilograms
- 79 Marino Sanuto, *I Diarii di Marino Sanuto*, tom.IV, p.544; tom. XVII, p.191; tom.XXVII, p.641; Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, pp. 166-167; K.S.Mathew, *Portuguese Trade with India in the Sixteenth Century*, pp. 114-129. Though the Portuguese got only 52,459 kilograms of pepper in 1502, the export to Europe increased to 944,262 kilograms of pepper in 1503. Later with the localization of Portuguese power in Cochin in 1505, the export of pepper and ginger to Europe began to shoot up: in 1505 the export was 154,120 kilograms of pepper and 23,607 kilograms of ginger; however in 1513 the pepper export was 1,050, 250 kilograms and ginger export was 210,200 kilograms. In 1517 about 2,309,875 kilograms of pepper and 129, 574 kilograms of ginger went to Europe.
- 80 This percentage-wise estimate is made on the basis of the information given in a document written in the second decade of the sixteenth century. As per this document the total production of pepper was estimated to be about 16,000 *bhars*(one *bhar* is equivalent to 166.83 kilograms) i.e., 26, 69, 280 kilograms. Out of this 2500 *bhars* (4,17,075 kilograms) were consumed domestically. About 3000 *bhars* (5,00,490 kilograms) were taken to Coromandel ports through the ghat-route. About 600 *bhars* (1,00,098 kilograms) went to Diu by sea for further distribution in Gujarat and Persian Gulf areas. About 9900 *bhars* (16,51,617 kilograms) went to Europe, Hormuz, the Red sea and the ports of Bengal. Raymundo Antonio de Bulhão Pato, *Cartas de Affonso de Albuquerque*, tom.IV, pp. 174-6; M.N.Pearson, *Coastal Western India: Studies from the Portuguese Records*, New Delhi, 1981, pp.27-32. The percentage calculation of European trade is done on the basis of the average annual export to Lisbon from Cochin. For details see Pius Malekandathil, "The Mercantile Networks and the International Trade of Cochin", in *Rivalry and Conflict: European Traders and Asian Trading Networks*, edited by Ernst van Veen and L.Blusse, Leiden University, Leiden, 2006, p.146
- 81 Pius Malekandathil, *Maritime India: Trade, Religion and Polity in the Indian Ocean*, New Delhi, 2010, pp. 112-6
- 82 See the letter of Fernand Cron, sent from Cochin, dated 26-12-1587, Fürstlich und Gräfllich Fuggersches Familien und Stiftungs Archiv, Dillingen Donau, MSS. Cod.no 46, I, fols. 50-1v; Pius Malekandathil, *The Germans, the Portuguese and India*, Münster, 1999
- 83 Pius Malekandathil, "The Mercantile Networks and the International Trade of Cochin", in *Rivalry and Conflict: European Traders and Asian Trading Networks*, edited by Ernst van Veen and L. Blusse, Leiden University, Leiden, 2006, pp.154-5
- 84 The report of Francisco da Costa, "Relatorio sobre o Trato da Pimenta", in Antonio da Silva Rego, *Documentação Ultramarina Portuguesa*, vol.III, Lisboa, 1963, pp. 315;351
- 85 Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India:1500-1663*, pp.202-3
- 86 The letter of Fernand Cron, sent from Cochin, dated 26-12-1587, Fürstlich und Gräfllich Fuggersches Familien und Stiftungs Archiv, Dillingen Donau, MSS. Cod.no 46, I, fols. 50-1v.
- 87 For details see Pius Malekandathil, *The Germans, the Portuguese and India*, pp. 75-96
- 88 Om Prakash, *The Dutch Factories in India: A Collection of Dutch East India Company Documents Pertaining to India*. Vol.II, New Delhi, 2007, p.259
- 89 Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of India*, p. 266; A.R. Disney, p.113
- 90 Binu John Mailaparambil, *Lords of the Sea: The Ali Rajas of Cannanore and the Political Economy of Malabar, 1663-1723*, Leiden, 2012, p108
- 91 Archa N.G., "Movement of Spices, People and Faith: Role of Indian Ocean in the Making and Unmaking of Calicut, c.1300-1750 A.D", M.Phil. Dissertation submitted to the Centre for Historical Studies, JNU, New Delhi, 2016, p. 197.



Use of Spices in Ayurveda

Dr. Anju Gupta



Indian traditions have long been utilizing various spices and there is a scientific basis to their use. Traditionally, spices used as part of the diet, have holistic effects on human health. In India we can find a wide range of spices in every home. They form an inseparable part of every kitchen.

The history of spice is almost as old as human civilization. India may be recognized as the 'The home of spices'. There are more than 80 spices grown in different parts of the world and around 50 of them are grown in India. Each spice has its own aroma, flavour and medicinal value. Their healing properties rejuvenate the body.

Spices are derived from different parts of plants i.e. from bark (Dalchini), root (Adrak), leaf (Kadi patta), buds (laung) etc.

Spices are packed with healing power! Think of how much spice is used in cooking compared to the quantity of food that we eat. This is because

they are so powerful. Ayurveda is one of the world's oldest forms of medicines. It is not merely a form of medicine but also a philosophy that promotes a healthy lifestyle. It uses different herbs and spices for treating a plethora of health problems. **The herbs and spices are used due to their energetic qualities, and not just because of their chemical constituents.** Practitioners use common herbs and spices to treat both simple as well as complex health problems.

Here we talk about some of the common spices one can find in the masala box of every Indian family and how they can be used, apart from giving flavour to the food.

DALCHINI



Cinnamon (*Cinnamomum zeylanicum* Blume) is a commonly used aromatic spice with medicinal properties. This spice is a good digestive and its pleasant flavour has a soothing effect on the mind. In Ayurveda, it is considered kapha-Vata dosh har. It stimulates digestion; expels abdominal gas; and exhibits expectorant action. It

also is a high source of antioxidant, contains anti-inflammatory properties, protects heart health, fights type 2 diabetes and may help lower cancer and bad cholesterol, cleanses urinary bladder, is useful in rhinitis, in worm infestation, infected wounds, rheumatoid arthritis and helps to lower BP by its cardiac tonic and diuretic effects. It has carminative, antiseptic and astringent properties. Here are some of the other uses of Dalchini:

Cold and cough—Prepare tea by boiling half teaspoon ginger, 1/4 teaspoon cinnamon powder and one clove in one cup water. Boil for a few minutes. Filter and add honey. Drink hot a few times a day. Chewing controls the throat irritation and helps in dry cough.

Loss of appetite—2gms powder with equal parts of Dalchini and Ajvain to be chewed in three divided doses before taking food.

Vomiting—1-2gm powder with honey thrice a day, in divided doses.

Tension Headache—To be rubbed with water on a rough surface and applied to the forehead.

Mental Tension—The aroma has a soothing action on the mind; crushed pieces may be kept in a handkerchief or near the pillow.

Arthritis pain—Take 1 tbs cinnamon powder with 2/3 water and 1/3 honey to make a paste and apply at the place of pain.

Tooth ache—Mix cinnamon powder and honey in 1:5 ratios and apply at the area of the tooth ache.

Acne and black heads—Mix cinnamon with lemon juice and apply on acne and blackheads.

Hair fall—Mix cinnamon powder and honey with warm olive oil and apply on scalp and wash after 15 minutes.

Bad breadth—Chew cinnamon or boil cinnamon powder, one teaspoon in 150 ml water, and use as a mouthwash.

Diarrhoea, loose motion—Take equal amounts of powdered ginger, cumin seeds and Dalchini. Make a thick paste by adding honey. Eat 1 teaspoon of it three times a day or take 3 gm cinnamon powder with water two times a day.

Enhances Complexion—Mix honey and cinnamon powder and apply on face. Keep on face till it dries. Wash with plain water.



DHANIA



Coriander (*Coriandrum sativum*) is one of those rare spices that we use in the form of seeds, powder, or plant. According to Ayurveda, the rasa or initial taste of coriander is astringent. It promotes proper functioning of the liver, facilitates bowel movements, protects against urinary tract infections, has anti-fungal properties, is known to lower blood sugar by stimulating the secretion of insulin, and works on the nervous system. Dhaniya can be used to cure many diseases; here is a list of few:

Cough and cold—20 ml decoction prepared from 5gm coarse powder with sugar and turmeric powder thrice a day, or use of dhaniya powder as herbal tea every morning, prevents cold cough and problems related to digestion.

Giddiness and loss of memory—De-husked seeds of coriander should be boiled with 4 parts milk and 8 parts water. This should be reduced to half and taken internally twice a day.

Sunstroke or dehydration—20ml decoction prepared from coarse powder with sugar and a pinch of salt.

Intestinal worms—3-5gms powder with jaggery twice a day, for at least four to five days.

Mouth ulcers—Take paste of coriander leaves and apply on to mouth ulcer for 2 to 3 times a day. It will give relief from mouth ulcers.

Leucorrhoea—Take 10 gms of Dhaniya seeds and soak them in 100ml of water overnight and drink the water in the early morning. It gives relief in 7 to 8 days in most cases

Cure baldness—Take coriander seeds soaked in water and add 1 tsp of dried amla at night and filter it. Consume it in the morning.

It has a property of being a good diuretic and is used in case of high blood pressure, urinary tract infection and edema.



HALDI



Turmeric (*Curcuma Longa*) also known as Haldi (in India) has been used for centuries in Ayurveda, the 5,000 year old natural healing system of India. It has been used as medicine taken internally in the form of fresh juice, boiled tea, tinctures, or powder, and topically as creams, lotions, pastes, and ointments. Haldi is a multifaceted wonder spice which helps to boost immunity, enhances the complexion, detoxifies the liver, fights allergies, stimulates digestion and prevents and treats Alzheimer's Disease. Other benefits of turmeric are:

Diabetes—Fresh turmeric juice and Amla juice of 10 ml each to be taken twice daily.

Anaemia—Turmeric powder (1 tsp) mixed with honey.

Acne and fair complexion—Use of haldi with water, milk or cream on face gives glow to the skin. Application of haldi paste on the acne twice a day

Burns—Apply (1tsp) turmeric powder mixed with (1 tsp) aloe vera gel on burnt areas.

Cold—Drink warm milk with 2gm of haldi mixed in it, twice a day.

Dental problems—Make a paste using haldi (1tsp), salt (0.5tsp) and mustard oil, rub on gums and teeth twice a day.

Arthritis pain—Drink a cup of warm milk mixed with turmeric powder (1tsp) before going to bed.

It is an important herb in Hindu rituals. In cooking, turmeric acts as a yellow colouring agent. Burning turmeric can repel insects. Inhaling the smoke can assist in coughs, asthma and congested nasal passages.



ELAICHI



Cardamom (*Elettaria Cardamomum Maton*) is a warming spice, giving off a sweet and pungent smell and is used profusely in desserts, especially in India. According to Ayurveda, elaichi is tridoshic (good for balancing all three doshas). Cardamom has long been used as an effective herbal remedy for digestion problems, gall bladder complaints, heartburn, bronchitis, irritable bowel syndrome (IBS), etc. and acts as an effective body detoxification agent. Traditional uses and health benefits of Cardamon include the treatment of:

Sore Throat—Boil cardamom and cinnamon in water and gargle two to three times a day to control sore throat.

Hiccough—Boil four pieces of cardamom (grinded) in 500 ml of water and wait until water level reduces to 200 ml. Filter and drink.

Cough—Elaichi powder along with honey (1 tsp) to be taken 2-3 times a day. It helps in dry as well as in productive cough.

Cold—20 ml decoction prepared from elaichi, ginger, kaali mirch and tulsi leaves should be taken 2-3 times a day. (Warm)

Urinary tract infection—Two pieces of small eliachi (grinded) to be taken with milk as it relieves urinal pain.

Aroma Therapy—Cardamom oil acts as an essential oil for aroma therapy.



METHI

Fenugreek (Methi) seeds are most commonly used as medicine in Ayurveda. The dried leaves of fenugreek are called **Kasuri Methi** which is used as a flavoring agent in Indian food and for treating digestive ailment. **Fenugreek**

oil extracted from the fenugreek seeds is also used for diabetes control, muscle spasm, enhancing milk production, and for the similar benefits of the seeds. It acts as a stimulant for the stomach, intestine, pancreas, gall bladder and liver. Thus it improves overall functions of these organs and also cures sticky or greasy stools, Diarrhea with mucus in stool, Liver Disorders, Chronic Appendicitis.



Methi possesses strong antimicrobial, anti diabetic, antioxidant, and anti-carcinogenic activities, which help in the treatment and prevention of several diseases.

The most common health benefits and medicinal uses of fenugreek are described below.

Diabetes—2gm powder with milk twice a day.

Lactation (to increase mother's milk)—5gm powder with milk and sugar in the morning.

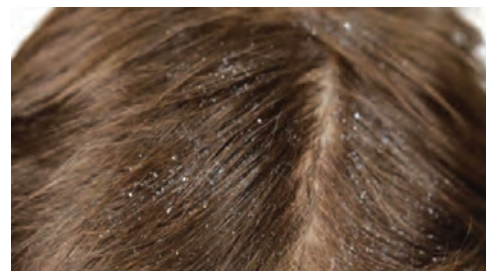
Dandruff—Coconut oil boiled with methi powder should be used regularly. Scalp should be massaged with paste mixed in the water 30 minutes before the bath. Use of methi paste acts as a good conditioner.

Helps in losing weight—Soak a few fenugreek seeds in water and chew them in the morning, on an empty stomach.

Good for beauty and health—Helps to attain hormonal balance in women and therefore, helps in enlargement of breasts. It also helps in preventing wrinkles, blackheads, pimples, dryness and rashes.

Tonsillitis—The decoction is prepared using 800 ml water and 20 grams fenugreek seed coarse powder, which is reduced to 200 ml liquid. This fenugreek decoction is used for gargling and rinsing the mouth in cases of tonsillitis.

Rheumatoid Arthritis—Fenugreek has anti-arthritis and anti-rheumatic activities. According to Ayurveda, fenugreek seeds exert the analgesic and anti-inflammatory action on the joints. Seeds reduce joint inflammation, stiffness, swelling and pain.



SAUNF



Fennel Seeds (*Foeniculum Vulgare* Seeds) are also called SAUNF (SOUFF) in India. These are highly aromatic dried seeds of the fennel plant. Fennel has medicinal as well as culinary uses. **They** are sweet and woody in taste. People commonly chew fennel seeds after meals (in India), It has many health benefiting nutrients, minerals and vitamins. They have been utilized for treating indigestion, diarrhoea, colic and respiratory ailments. It is also beneficial in eye problems, menstrual disorders and relieves gum disease or toothache. According to *Ayurveda*, use of saunf as medicines reduces all the three TRIDOSHA (vata,pitta and kapha). The health benefits of saunf are:

Indigestion—Saunf is a rich source of dietary fibre. Our body needs the insoluble fiber for better functioning of the stomach, relieving one of a condition such as constipation. 3-5 gm saunf (powder) with fried Jeera (powder) and Rock Salt with warm water thrice a day (daily).

Diarrhoea and Abdominal Pain—3-5gm powder mixed in buttermilk three to four times a day daily.

Weight loss—It relieves stomach related ailments such as gas, indigestion and bloating of stomach.

Increases breast milk—Saunf helps lactating mothers in milk production.

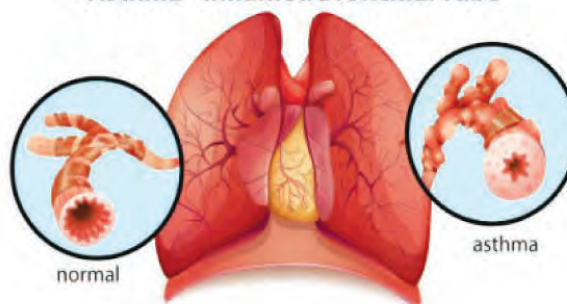
Saunf in infants—Helps in relieving gastro intestinal pain.

Asthma and Bronchitis—Boiling fennel seeds and leaves and inhaling them provides relief from asthma and bronchitis.

Heat stroke—Soak a handful of fennel seeds in water overnight. Drink the strained water in the morning with a pinch of salt mixed in it.



Asthma - Inflamed Bronchial Tube



JEERA



In Ayurveda this common spice is used to treat different health problems due to its antiseptic, carminative, diuretic, antispasmodic, anti-inflammatory, antioxidant and anti-flatulent properties. It is used in the treatment of various health problems like indigestion, amnesia, diarrhoea, morning sickness, anaemia, nausea, acidity, flatulence, stomach pain, common cold, cough, and insomnia.

Hyper-acidity—5-10gm ghee boiled with jeera should be taken with rice during meals.

Skin disease—1-2 gm powder of fried jeera mixed with milk two times a day.

Improves Milk Production in Mothers—Eating cumin seeds in food and drinking its water improves breast feeding in the lactating mother.

Diarrhoea—1-2gm powder of fried jeera mixed in 250 ml buttermilk, four times a day.

Indigestion—3-6gm powder of fried jeera and rock salt mixed with warm water thrice a day.

Cold and cough—Warm decoction of 2gm jeera, 5gm dhania, 1gm haldi, 1gm methi powder and a little pepper should be taken with honey 2-3 times a day.



ADRAK

Ginger root (*zingiber officinale rosc.*) because of its strong aroma is one of the most famous spices used in various Indian dishes and in other ways all over the world in any form like fresh, dried, powdered, juice or oil. In India, the common name for Ginger plant is sonth or Adrak. Gingeril is its natural oil that provides a unique flavor to this spice. It is famous in medicine systems because of its medicinal properties as it has very powerful

anti-inflammatory and anti-oxidant properties, specially when used for therapeutic purposes and its practical use helps to cure respiratory tract and asthma, reduce swelling and edema, arthritis, rheumatoid arthritis, dizziness, menstrual pain, motion sickness and weight loss and many more.



Some of the nutritional health benefits of ginger are mentioned below:

Hoarseness of voice—1-3gm powder of dry rhizome mixed with honey in three divided doses.

Indigestion—5gm crushed rhizome mixed with salt or jaggery, twice daily before a meal.

Ear pain—2-4 drops of fresh warm juice to be instilled in the ear (don't use when there is discharge).

Abdominal pain—5ml juice in a glass mixed with buttermilk with lemon and salt.

Acne and pains—10-20ml decoction prepared from 2gm of dry rhizome twice a day.

Cold and cough—2-5gm powder of dry rhizome mixed with jaggery thrice a day, in divided doses. 10ml decoction prepared from a piece of ginger every morning prevents recurrent attacks of cold.

Headache—Warm paste should be applied over forehead upto 3-4 times a day.



AJWAIN

Carom seeds (*Trachyspermum ammi sprange*) are usually found in every Kitchen (in India) and used to enhance the flavour of the foods and prevents the diseases occurring due to gas formation in the abdomen. According to Ayurveda, it is potent AMANASHAK, which means it reduces toxin formation in the digestive canal restricting

indigestion and also kills worms. It is extremely beneficial for earache, tooth ache, influenza, heart problems, arthritis, and nasal blockage. Ajwain is a powerful cleanser and has many health benefits such as:



Piles—1gm powder and 1gm black salt with buttermilk twice daily.

Painful menses—1-2gm powder of seeds mixed in warm milk thrice a day for 2-3 days.

Loss of appetite—1gm powder along with warm water half four before meals.

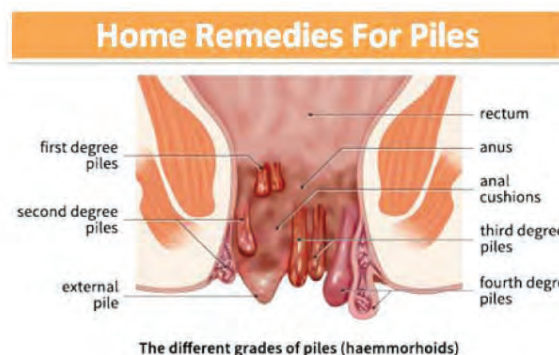
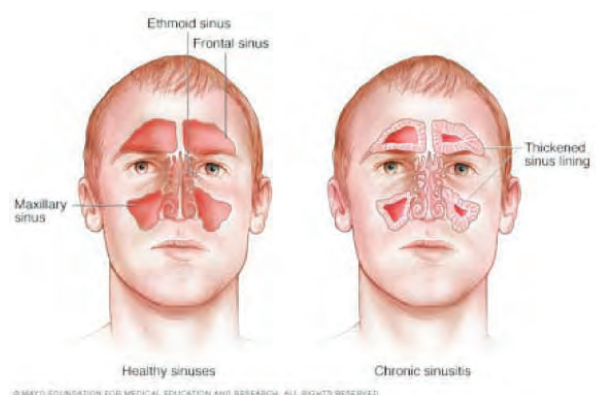
Urticaria (skin allergy)—1-2 gm powder of seeds mixed in water twice daily.

Flatulence (gas)—2gm ajwain powder with equal quantity of saunf powder mixed in warm water.

Sinusitis—Warm paste should be applied over forehead and little below the eyes in the morning.

Nasal block—1-2gm powder should be put in steaming water and vapour should be inhaled (2-3 times a day).

Rheumatism—The oil extracted from seeds is beneficial in the treatment of rheumatic and neuralgic pains. It should be applied on the affected parts.



KALIMIRCH

Black pepper (*Piper nigrum*, maricha) is a warm spice mostly used as dried fruit (peppercorn), tincture and essential oil. It is native to India. It comes in three varieties- black, white and green pepper. Black pepper is one inerrable herb used to cure many health disorders. Though it is used as contributory ingredient in many ayurvedic remedies, mainly it is used to cure cough, cold,

Indigestion, hoarseness, dysentery, malaria, gums problems and many other disorders. Here are some other home remedies in which kalimirsch can be used:



Cough—1gm powder of seeds mixed with ghee and honey twice daily.

Skin disease—A pinch of kalimirsch powder with coconut oil for local application

Mandagni (Dyspepsia)—Take 25 grams each of Kali mirch, saunth, peepal, jeera and sendha namak. Mix all ingredients together to prepare a powder. Taking half spoonful of this powder with milk improves digestion power and treats the condition of dyspepsia.

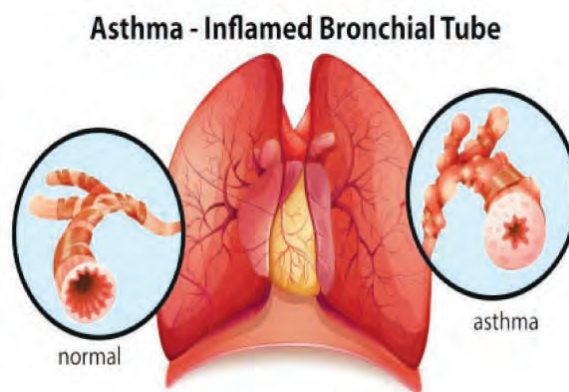
Hoarseness of voice—1-2gm powder of seeds fried with ghee twice daily, to keep in mouth.

Indigestion—A pinch of powder with a piece of crushed ginger and rock salt should be taken before meal.

Bleeding gums /Tartar/ Bad breath—A pinch of powder mixed with honey should be applied to gums after gargling with warm salt water twice a day.

Bronchitis and Asthma treatment—Licking half spoonful kali mirch powder with honey removes

cough from the lungs, treats cold, bronchitis and asthma.



Spices

Manjit Gill

The fame of Indian spices is older than recorded history. The spices constituted an important place in our agriculture and influenced our cuisine. Once considered a luxury, spices have today become a part of our daily food. They are widely used today in our cooking for a varied number of purposes. Though consumed in small amounts, they enrich our food and are considered a good source of minerals, apart from supplying appreciable amounts of vitamins and the other nutritious additives.

What is a Spice: The word spice is derived from the Latin 'species', meaning a commodity of special value and distinction. A spice is usually defined as a strongly flavoured aromatic and tasty vegetarian substance, obtained from the root, bark, flower, or seed of a tropical plant. Nearly all known spices are considered to be digestive, diuretic and an aphrodisiac. Their sensuous aroma and taste created by the alchemy of cooking with spices has been so regarded more than most other additives to the culinary arts.

We often refer to herbs and spices in the same breath. However, a herb is defined as a seed plant which does not develop woody persistent tissue, like that of a shrub or tree, but is more or less soft or succulent. Herbs are annual, biennial or perennial, according to the length of life of the roots. Used for medicinal purposes, or for their

use to aromatically or fragrantly, flavour, taste in food and beverages. It is best to use fresh herbs in season. Herbs may be dried in well ventilated rooms with no direct sun and store in a dry and airtight jar.

To achieve the spices' full potential in cooking one needs to become familiar with spices and their specifics of taste, smell and how each spice works in the alchemy and art of cooking. Spices have been used throughout history for their taste, flavouring and medicinal properties. Whole spices retain their aroma and potency much longer than ground spices, but it is advisable to store whole spices, no more than one year from their crop season. If stored longer the spice aroma gets faint and musty. It is better to discard them at that point, otherwise you will end up with a musty weak taste in your cooking. But the spices are expensive; so the right inventory as per their season is important.

To capture their full flavour and taste, it is best to crush or grind them as and when you need to use them. Grind spices in a mortar and pestle; they give fullness of palate. It is advisable that the spices should be dry and lightly roasted in a heavy base pan over gentle heat. This process of roasting is critical and must be done like a meditation, with full concentration until you feel the fragrance. Grinding with a mortar

and pastel, it retains the natural aroma, taste and there is no loss of volatile oils. It does not generate much heat, and is the best way to grind to various forms. In case the grinding has to be done in an electrical grinder, then the pre grinding the broiling or roasting needs to very gentle to evaporate the moisture or may not be done at all, in case the spices are dried enough. The grinders generate enough heat to roast them while grinding. The chemical reaction which very often results in change or loss of flavour and taste is due to oxidation by the oxygen in the air. Exposure to air also leads to loss of flavour due to evaporation of the more ethereal elements in spices.

As moisture and direct sunlight is the biggest enemy of spices, they must be kept in airtight bottles or jars. They should be also dry because

the damp condition of bottles or jars encourages the growth of moulds and other micro-organisms which usually lead to discolouration, unpleasant aroma, flavour loss and taste deprivation. The spices are used in culinary practices whole, freshly pounded, grinded to a coarse powder and to a fine powder. The uses depends on the function of the spice in a particular dish to have a specific texture and taste and flavours. Spices have various functions in a dish. They are used for dominant flavour and taste or complimenting the other spices used, to achieve the most pleasant and pleasurable flavours and tastes. Hence the amount, time and form of usage varies.

Very often the secrets of the great chefs have been tiny amounts of spices and herbs added to food. To do this requires not only imagination but a good knowledge of the possibilities. A chef must



The mustard plantation

know the tastes, flavours and characteristics of all the food ingredients of the dish to achieve effects which are subtle or unexpected as spices vary in flavour and taste. In today's lifestyle, the use of technology is becoming more and more common and we believe this methodology can prove to be the best means for safe preservation. While freezing spices, the ice crystals are formed which ruptures the cell walls of the spice and makes the flavour and taste more concentrated by releasing the flavour and taste elements which otherwise could have remained trapped inside. This is specially evident in food which is prepared containing the king of spices 'Pepper'. The dish will have the flavour and pungent peppery taste.

If deep frozen and reheated, the pungency of pepper will intensify.

Spices, behaviour and their effect with heat during cooking is mystically inconsistent. During cooking two processes are happening. In one, the flavouring and taste elements are being released as the tissues and cell walls are broken, and in the second process the more volatile aromatic constituents, particularly the essential oils, are being realised and vaporised into the atmosphere.

The essential oils or ethereal oils are of various chemical composition. As these oils have a strong aroma and are volatile in nature, therefore



The tejpatta plantation



The ginger (adrak) plantation

they vaporise when heated. They are important aromatic substances and can be extracted from spices, herbs and even from flowers. They are very intense and can be used in cooking with dilution alpha propylene glycol. A very small amount, like a drop, is used to have a very pleasant fresh aroma coming from the food. The essential oils can be extracted by distillation. In the kitchen, they can be used in many dishes such as rice, sweets, butter, ghee, cream, soups, etc.

In food prepared by long boiling on high heat, the most essential or volatile oils are always lost. Hence, boiling should be done on low heat and preferably covered. On the other hand cooking or boiling, softens the spices and helps to release the volatile oils and makes the dish well distributed, with a pleasant aroma through the dish. It is these two conflicting and extraordinary properties that a good cook learns to manoeuvre between. The most essential oils dissolve in fats and oils but not in water. Hence the best way to use spices in food is to mix them with

fats and oils. Our Indian traditional cooking pots are basically designed so that we can retain the essential oils in the food and evaporation is much less, or not there at all.

Cooking with spices is always like walking on a tight rope. It should be focused and should not tilt too much on any one side. Long slow cooking in a right shape and size pot, as per the dish, usually makes the dish more aromatic and tasty. The covered pot cooking or even sealed lid pot cooking will have the maximum retention of the aromas. Boiling on high heat will make the volatile oils escape but cooking on a gentle heat may increase the overall taste. The subtle balance of aroma and taste of the spice is the art of cooking with spices.

Another interesting fact about the nature of spices is that they break down into other substance, during a chemical reaction while heating. Thus, there is a strong difference between boiled food and fried food in the matter of flavours and taste,

as there is a great difference in stew, braising, pot roasting and barbecue.

It has often to been said that: "Food is for the body; Taste is for the Soul". Eating is not a pleasure if the food you eat lacks taste. The very taste and smell of food triggers the release of certain chemicals in the body that prepare it to accept and subsequently digest the same. With our understanding of Ayurveda that we know food does not nourish, in spite of having nutrients in the food, if it is not tasty. Indian gastronomic knowledge seems to have understood this thousands of years ago. It is very important to understand basic tastes of the natural form of

the flora and fauna. As said before, a spice is defined as a strongly flavoured, aromatic and tasty vegetable substance.

The art of creating flavours and taste is neglected when adhering slavishly to measurement, like a 'pinch of salt', '1 inch cinnamon', 'a pin head of hing (asafoetida)', '¼ grated nutmeg', or 'the chillies if liked to spices' do not work in mathematical proportion—the quantity of spice does not double when the quantity of meat or the vegetable doubles in the recipe. Yet flavour and taste, with texture is the cornerstone of good cooking and this cannot be achieved by slavish unmindful and thoughtless measurement.



The nutmeg plantation

The finest cooks seldom measure the spices they add. Eye, hand measurement, taste, instinct and experience determine how they create flavours and taste in the dish. This is something, a cook must cultivate. Flavours and taste have to be developed by acquiring the basic skills of good cooking and a balance struck between the various added spices which are blended together.

To get the best results of spices and to have the right or desirable aroma, flavour and taste, a cook, like any artist, must have and use a personal opinion after careful study and practice. A well practised cook seems to taste their food creations only at a point he knows to be critical. The amount and form of spices one uses obviously has a direct relationship with the quantity of food cooked in the pot and the kind of cooking

method used. One would not measure the salt in pinches when seasoning the meats, fish and fresh produce.

Sometimes the names of spices may be quite confusing. There may be a little confusion in the scientific names and some doubt as to what is what. When it comes to popular names the confusion is quite incredible. For instance there is a confusion between caraway seeds, cumin and nigella seeds. For some spices like ajwain there is no popular name in English. Another a spice, bay leaf, is a leaf of the laurel tree from the Mediterranean. We have a spice called tej patta, very common and popular in Indian cooking. There is no English word for this leaf spice. It is a leaf from a different tree. When bay leaf is used in Indian cuisine, there is not the same aroma,



The jeera plantation



The turmeric (haldi) plantation

flavour and taste as one gets from tej patta. Both leaves are very different to look at also. The same is the confusion between cinnamon and cassia.

A good practice in the kitchen is to see that the spice box is within easy reach of the stove and not far away, hidden in the kitchen somewhere. The spices must be in the bottles with their labels. But the long storage should not be in glass. Spices should not be in containers and without labels, as in this case one keeps opening the containers and that spoils the spices, by the entering of air and moisture.

Above all, follow this age old dictum. Enjoy cooking with spices—which requires all the three actions of Yoga. Knowledge, Action and Devotion

The NUTMEG—The Nutmeg tree grows throughout the tropical region. The trees are spreading evergreen, and can grow 4 to 10 meters high. The trees are “dioecious” meaning

that each tree is either a male or a female. Each male tree is capable of fertilising ten female trees and the only female trees yield an abundance of nutmeg. The difficulty is that the sex cannot be distinguished until five years after planting. It takes 15 to 20 years for a tree to fully mature to give fruits and will continue fruiting for 30 to 40 years.

The nutmeg fruit contains basically four parts. The first is the outer fleshy layer which most often is discarded. It can be preserved by blanching for a few seconds and air dried for an hour. One quick boil of it in sugar syrup and can be preserved in sugar to produce sweets. The second part of the nutmeg is the bright red, lace-like coating which is the valuable spice, mace. Then is the hard shell which needs to be broken to take out the large kernel, the nutmeg. It has been said that this fruit is one of nature's great packagings. The nutmeg taste bitter and pungent.



The coriander (dhania) plantation

Nutmeg is used in many sweets as well as savoury dishes, predominantly in sweets. Nutmeg complements as a single spice in milk and milk based preparations. It tastes good with potatoes, cabbage, broccoli, cauliflower, leeks and has a subtle flavour and taste when combined with coriander, mace, cinnamon and cardamom.

Grated nutmeg is a more effective way of using it than in a powder. It is more aromatic and has a longer taste on the form. It gives a strong and a

heady aroma to meat curries. It is light to digest and induces sleep.

Tej patta—known as Tamalpatra in Sanskrit, Tej patta is one of our ancient spices. These leaves belong to a cassia tree. They have no English name, and may be called Indian Bay Leaf. Often the tree Bay Laurel, a tree of Mediterranean origin, is confused with the tej patta. The appearance and aroma of the two are very different. Bay leaves are shorter and light to medium green in colour, with a large vein down the length of the leaf. Tej



The Dalchini (Cassia)

patta are about twice as long and wider than bay leaf, usually olive green to brownish in colour. Tej Patta is with three veins down the length of the leaf.

Tej Patta are very aromatic and have an aroma similar to that of the cassia bark or strong cassia, with a hint of cloves. Bay leaves, on the other hand, have a mild lemony fragrance with a bitter undertone.

For Indian cuisine tej patta tastes and gives the best fragrance, and subtly enhances the taste of mixed spices. Cooking a simple pulao, put a large leaf of tej patta into hot desi ghee along with any other whole spices. It will take the pulao to new heights. If tej patta is not available, it is better to double the quantity of clove and cassia than making a substitution by using Bay Leaf.

It is rich in many vitamins and minerals, and greatly helps in digestion and helps in problems

like celiac disease or irritable bowel syndrome. It contains enzymes which break down proteins and help in digesting meat dishes.

Cassia (Dalchini)—The truth about the cassia and cinnamon, are that both are the dried inner bark of different plants of the same family. Cassia is from the tej patta tree and Cinnamon belongs to the family of Laurel trees. Some do not bother to distinguish between the two. They should be treated as separate food ingredients, both from the point of taste, flavour. Cassia bark is a well known spice with a substantial scent and warm, pleasant taste.

Cinnamon is lighter in colour, has a citrus tone, is a mild and elegant spice with more sweet and less bitter and pungent notes. Cassia being dark, is strong in bitterness, pungent, with a lighter note of sweet taste. Cassia India (Dalchini) should be used in Indian cooking; the aroma and taste complements other spices. It is an

essential component of garam masala mix and a good combination with clove, cumin, cardamom, tej patta. Its flavour and taste is good for all kinds of sweets and savoury dishes. Cassia is often misnamed and mistaken as cinnamon and marketed to the consumers through retail outlets.

Pepper (*kali mirch*)—is perhaps the best-loved and most widely used spice in the world, and considered to be the most healing spice. It is indigenous to the southerly part of India's east coast, an area known as Malabar. Pepper corn comes from berries picked in a green or unripe state and allowed to sun dry until black. White pepper berries are picked slightly later, just as they are turning red, it is red pepper. They are soaked in water to remove the reddish outer skin before being sun dried and is called white pepper. White pepper has a milder flavour and pungency than black. Green pepper is when picked fresh and preserved in brine. Black pepper is a warming spice and contributes to the pungent taste. From a culinary standpoint, black pepper's uses are almost endless. Black pepper corns and other whole spices, such as cassia, clove and cracked cardamom green and brown pods, are sautéed in ghee and used to flavour various kinds of preparations such as vegetables, meats, fish and rice. Pepper corn is a major spice of *garam masala* and it combines well with almost every other spice or herb. It is used as seasoning.

It has cleansing and antioxidant properties, and it is a bioavailability enhancer—it helps transport the benefits of other spices to the different parts of the body. It helps the free flow of oxygen to the brain, helps enhance digestion and circulation, stimulates the appetite, and helps maintain the respiratory system's health and the health of the joints.

Long Pepper (*pippali*)—This is indigenous to north-eastern and southern India. Long pepper, also like pepper, is picked unripe and sun dried. An infusion acts as a stimulant, is carminative and an alternative tonic, also an aphrodisiac, and a diuretic. It is more powerful and stronger than black pepper. Hence, it must be used sparingly. The fruit of the long pepper is about an inch to an inch-and-half long and consists of many very small fruits the size of poppy seeds. The entire catkin or spike is broken to make either a coarse or fine powder.

Long Pepper was once widely used in cooking to impart a pungent taste. The use of long pepper declined in cooking, as the use of black pepper and chillies became popular. Again it has been discovered and its use in cooking is increasing. It really has an unusual flavour and has a deep and complex taste. Long pepper releases simultaneously an earthy pungency, a sweet note similar to cardamom and nutmeg.

Long Pepper is good to use for mutton stews, grill or roast fishes, meats and even for smoking foods. It goes well with cheese and many vegetarian dishes. Some use it in *garam masala*. Other spices that goes well with Long Pepper are bay leaf, coriander, dried ginger, ajwain, cumin, asafoetida. Long pepper also blends but does not need to mix too many spices. Here, the dictat is, lesser the better. Commercially, it costs less than pepper corn.

Thus every pinch and spoonful of spices carries with it a huge baggage of natural goodness, when used in the right proportions in the right foods.



Sufism as a Way of Life: Our Common Human Destiny

Sitakant Mahapatra

As a way of life Sufism emphasizes the qualities of love, compassion, forgiveness and good neighbourliness. These four qualities are the cornerstone of not only a happy individual life but the basis of building a happy community. In our times these qualities have been unfortunately systematically downgraded, ignored and devalued.

If we look around the events of the past even one year around us we cannot deny that human life has progressively been losing its essential qualities which give it meaning and significance. Instead of love we have been cultivating hatred, instead of compassion it is intolerance; instead of forgiveness it is anger and envy and in place of good neighbourliness it is indifference and enmity towards the neighbour.

The qualities of Sufism emphasize as the cornerstone of its philosophy the hallmark of all world religions. Throughout human history the value of these qualities have stood the test of time and been celebrated not merely by word of mouth but in the act of living as individuals and as members of a healthy community.

What we find around us today is a picture of hatred and terror, violence and destruction of precious lives. If we look only at the events

around last *Id*, surely the most important date in the calendar of Islam, we will have no words to describe the barbarism to which we have descended. Let us look at the plain facts. In Baghdad, 230 died in cruel circumstances as they were preparing for the celebration which emphasizes good neighbourliness, love and togetherness. Just as they were marketing for the biggest event, the colour of Mehendi became the colour of blood flowing in the streets. The smell of biryani was transformed into the stench of putrefying dead bodies. When the celebrated moon of *Id* came out it was blood-soaked in a darkened sky. The same scenario was repeated in Dacca and Kishoreganj in Bangladesh. In the latter city it was a massacre during the *Id* celebration in front of the mosque. The moon of *Id* rose in the sky to look at a horrifying picture of death and desolation, unspeakable cruelty of man towards his neighbours and the weeping of people who lost their near and dear ones. The palm extended towards Allah in piteous cry would go down in history as one of the sordid and cruel episodes of man's cruelty to man.

We know terror has no religion. Terror is going to become the central metaphor of our times and terror is already extending its realm the world over. In the Munich shopping centre of Germany a gunman kills 10 people mercilessly. He was a

young man who was born and brought up in the same city in a family where intense religious belief characterized their lifestyle. The date was the 5th anniversary of such a mass murder in Breisvik in Norway. In another German town a man critically injures five passengers. And we have read about the horrendous picture of a terrorist truck driver mowing down 80 persons on the sea-shore of the French Riviera city of Nice. Yet another 20 people are killed by bomb blasts in Kabul when the hapless government can do no better than declare three days of national mourning. In Libya a truck carried the dead bodies of 21 persons with complete evidence of torture and gunshots in the heads.

In the peculiar situation of Syria which along with Iraq is the modern world's theatre of merciless killings, death corners, removed from apparent good intention. The powers who stand by the rebels against the villainous Asad regime undertook air strike which mistakenly killed Aleppo hospital's several patients. The same story was repeated when several airstrikes almost destroyed a children's hospital and a blood bank. These are situations when it is no longer possible to discriminate the good from the bad and the honest intentions from horrendous cruel performance. These airstrikes were no doubt against the ISIL whose cruelty against humans far excels anything human history has known. But that does not take away the crime of killing innocent people. We had never ever seen in history televised pictures of a hooded person beheading a row of captive opponents, one by one.

For me one of the most heart-rending events was the Taliban killing the very well known qawwali (sufi devotional song) singer Amjad Sabri perhaps one of the best in the subcontinent. He was a member of the celebrated Sabri family. Amjad

Sabri came from a long line of legendary qawwals Ghulam Farid Sabri and Maqbooh Ahmad Sabri who, in the 1960s and 70s redefined the old style of qawwali singing and brought into the admiring notice of the West in fact the family's musical lineage stretches back to the 16th century and many believe they were direct descendants of Tansen, the legendary musician in the court of Mughal emperor Akbar. The family which follows the Subiriyah branch of Sufi Islam migrated to Pakistan in 1947.

Taliban had targetted Sufi shrines along with other civilian targets in Pakistan since the 2007 military operations against the radical Lal Masjid in Islamabad. The worst of all was a 2010 attack on the famous Data Darban shrines in Lahore that left over 40 dead.

My purpose in narrating these heart-rending events is not only the realization that terror now seems to have overtaken all the essential features of life which makes us civilized human beings. It is no longer a question of specific religion, country, or sect. It seems to be spreading its wings all over the world and seeking to extinguish all that is valuable, sacred and above all human in all religion in fact, all of human history. The question emerges where do we go from here? Do we have to throw up our hands in despair or the civilized society all over the world, including the international organizations, try to defeat this spreading canker in the soul of our civilization? For that it is essential to build the forces of peace, love and brotherhood in the hearts of all human beings and make them realize a time has come when no country, no religion can say that it is not their duty or obligation to combat this monster that is spreading its wings.

Love thy neighbour. This is the teaching of all world religions. Buddhism taught us the virtue of

compassion, or *karuna*. The quality of forgiveness is enshrined in all religions. Forgiveness is an essential dimension of sacred ethics that gives meaning and significance to our lives. Ethics would teach how to forgive, for to "live in a world in which no one is forgiven, where all are irredeemable is," as Milan Kundera says in his novel *The Joke*, "the same as living in hell". Thus teaching the art of forgiveness, perhaps ethics, has that as its major responsibility today. And its modality of structuring the grace of forgiveness is like the forgiveness of Jesus. This finds a mention in the Gospel according to St. John when the scribes and Pharisees brought to Jesus a woman taken in adultery and asked him what punishment he would recommend for her. Moses, they said, wanted such a culprit stoned. Head down, Jesus remained silent and scribbled something on the ground with his fingers. When they repeated the question more than once, he slowly raised his face and said, "Anybody who has never sinned let him first throw a stone at her". Having said this, he again bent his head slowly and scribbled something on the ground. A long time later when he raised his face he discovered the woman standing alone and no one else around. To his query whether anybody threw any stone at her, she replied, "No, my Lord". Jesus said, "I too do not blame you. Go back and do not sin".

Like Jesus, literature does not and should not address either the accusing crowd or the helpless accused through rhetoric. For its function is, in words that Derek Walcott has put beautifully, "to hold a little space and function not for diversion or distraction but for pure concentration". Its attempt is thus to hold, in a single thought, reality and justice. And that can be possible not by proposing to be instrumental or effective but to hold attention for some space. And function not as distracting or rhetoric but as pure concentration conceived and nurtured in silence.

In an age of speed, Pasternak said long back, we must think slowly. And judge things, respond to reality and look at relationships also slowly. It is only by that process we can learn the forgotten art of forgiving.

[Speech delivered at the South Asia Sufi Festival, 2016 at Jaipur]

Born in 1937, Dr. Mahapatra was educated in Utkal, Allahabad and Cambridge Universities. He holds a Doctorate in Social Anthropology. After two years of University teaching, he joined the Indian Administrative Service in 1961. In that capacity, he held several positions under the State Government. In Government of India, he held the post of Secretary, Culture; Secretary, Official Languages; and Chairman, National Book Trust. He has been a fellow in the world's two premier Universities, namely Cambridge and Harvard. He has also been a Homi Bhaba fellow for 4 years.

He has published 21 anthologies of poems, 9 collections of essays on literature and culture and 4 travelogues. A prominent social anthropologist he has translated and edited 10 anthologies of the Oral Poetry of Indian Tribes. The UNESCO in its collection of Representative Works have published such an anthology entitled "They Sing Life" (2002). OUP has published his two major works on transformation of tribal societies of India.

He has received several Awards for his poetry including Bharatiya Jnanpith Award, Sahitya Akademi Award, Sarala Award, Gangadhar Meher National Award, Joshua Sahitya Samman, Kabir Samman, Sahitya Bharati Samman, Soviet Land Nehru Award and Kumaran Asan Poetry Award. The President of India conferred on him Padma Bhushan in 2003 and Padma Vibhushan in 2010. Five Indian Universities have honoured him with honorary D.Litt. degrees. Soka University, Tokyo has conferred its Highest Honour in a Special Convocation.

Translation of Poetry into Indian Languages—Dr. Mahapatra's poem-anthologies in translation have been published in all the Indian languages. There

have been eleven such anthologies in Hindi, four in Punjabi, three in Malayalam and four each in Bengali and Urdu. Five translators have received the Sahitya Akademi Award for Translation. They are Varsha Das for translating into Gujarati, Padma Sachdeva into Dogri, Dr. Rajendra Prasad Mishra into Hindi, Dr. Karamat Alli Karamat into Urdu and Dr. Bhagirathi Nanda into Sanskrit. Dr. Mahapatra happens to be the only one Indian poet, the translators of whose poetry have earned Sahitya Akademi's Translation Awards to five eminent persons.

Translation of Poetry into non-Indian Languages—Anthologies of his poems have been published in 14 non-Indian languages. Apart from all the major European languages such as French, Spanish, German, Russian etc., they include Arabic, Hebrew, Chinese and Japanese. Among the translators are eminent scholars and poets like Tan Chung, Aurel Covaci, Erik Stinus and Jojo Boskovoski.

Works of Criticism in his Poetry—Seven book-length studies of Mahapatra's poetry are available in Odia. Of those seven, those of Dr. Dasarathi Das and Dr. Rangadhar Nayak earned them D.Litt. degrees, three others but of these seven earned Ph.D. degrees for their works. There have been two critical works in Hindi, both by Dr. R.N. Srivastava and one in Kannada by Dr. Rajasekhar Neeramanvi, published by the Karnataka Sahitya Akademi. A major work titled Sitakant Mahapatra: The Mythographer of Time

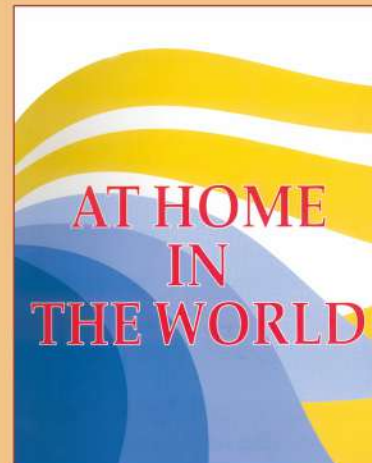
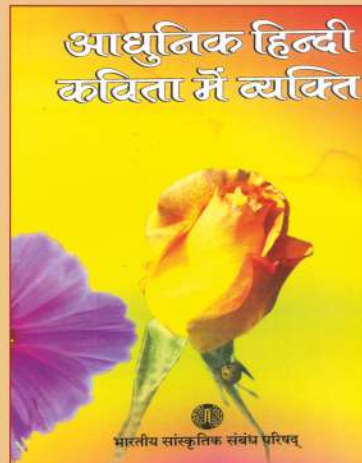
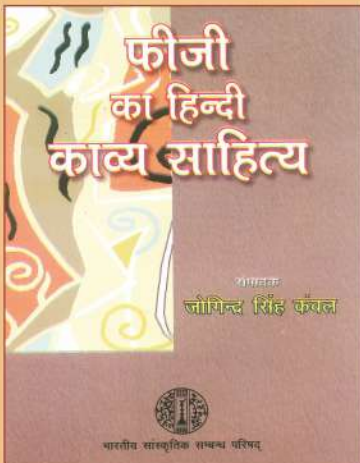
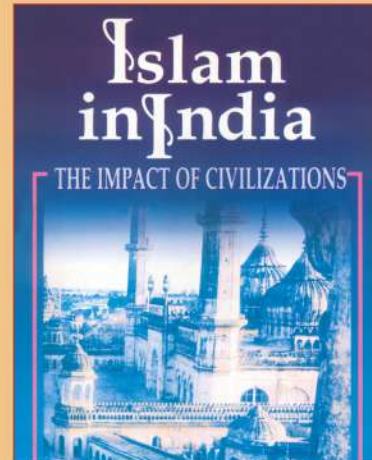
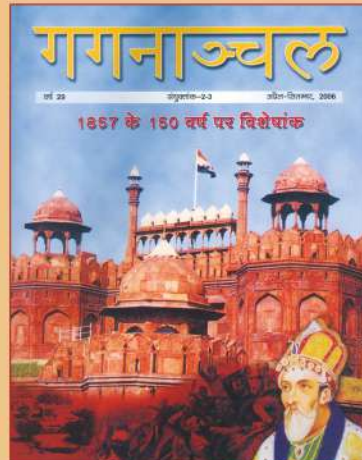
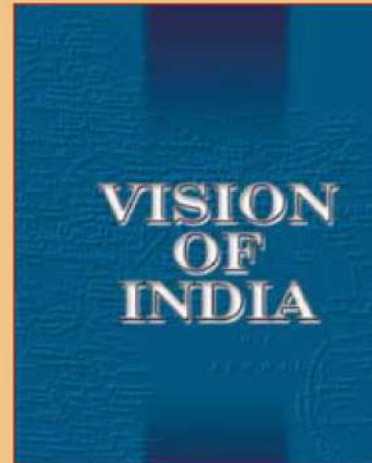
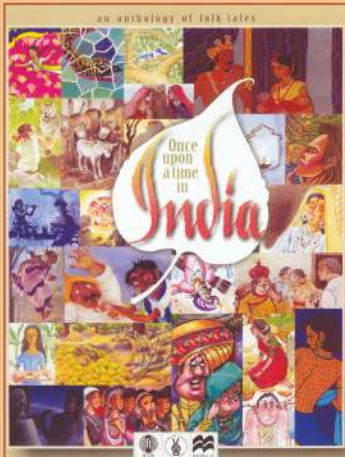
edited by Sura P. Rath has also been published. Two other scholars have worked for their Ph.D.—one on the comparative study of Mythology in the Poetry of Dr. Mahapatra and SriAgneya; the second one on the theme "The Voice of Prayer in the Poetry of Rabindranath Tagore and Sitakant Mahapatra".

His Poetry in Performing Arts and Films—Three of his poems on Jara, Kubja and Yashoda have been performed in Odissi dance style by Sonal Mansingh. A Jugalbandi of the poem on Yashoda has been rendered in both Kathak and Bharatnatyam styles by Sovana Narayan and Prativa Prahallad. Dr. Kanak Rele has danced the song on Kubja in Mohiniattam style.

Documentary films on his life and poetry have been produced by Sahitya Akademi, Films Division of India and Jnanpith of India. Ramoji Films have produced two documentaries on his poetry in Hindi and Telegu in their series titled Margadarshi.

Lectures and Readings—He has lectured on Development Anthropology and Literature and gave reading of his poems in several Universities in India and abroad including Harvard, Chicago, Birmingham; Soka University, Tokyo; International Poetry Conference at Struga (1975 and 1983), Universities of Leningrad, Bangkok, Moscow, Paris and Stockholm. He has also presided over several International Conference on Art and Literature.





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