A review of the past studies is useful to understand the various aspects of the problem taken up for research to plan the current study, to define concepts, hypotheses and scope, to select tools of analysis and to analyse the research problem effectively. Hence, the empirical works relating to the spices (including pepper) exports and overall exports are reviewed and a brief account of the review is presented in this chapter which is arranged in two sections. The first section presents the past studies related to general exports. The second section presents the past studies made on spices export including pepper. Though pepper has much economic, historic, political and cultural significance, the academic community seems to be neglecting the sector. This may be the reason why the research on the topic, particularly about the export aspects of pepper, is very limited in number. Another important point is that majority of the published research works do not have much significance focusing on the rapid changes of cultivation practices and trading environments. However, the researcher had gone through the available published works as far as possible to obtain a clear theoretical background for the present study. The findings of the literature review are briefly reproduced below.
Section I

STUDY RELATED TO GENERAL EXPORT

Muruganandhi et.al. (2008) in their study on “A Study on the Direction of Trade in the Indian Turmeric Exports: Markov Approach” found an active positive and significant growth in export quantity and value which indicates that there exists good demand for the Indian Turmeric in the foreign markets. Moreover, the higher unit value fluctuations had created greater instability in the export value and the USA and Malaysia were stable markets for Indian Turmeric and others were considered to be non-stable with low transitional probability intention. It was suggested that the appropriate positioning and pricing strategies must be used to strengthen India’s position in the unstable markets.

Shinoj P.A and V.C. Mathurb (2008) In their study on “Comparative Advantage of India in Agricultural Exports vis-á-vis Asia: A Post-reforms Analysis” had shown that exports of various agricultural commodities from India responded differently in terms of comparative advantage during the post-reforms period. India had enjoyed a comparative advantage in tea exports but depicted a declining trend over the years. However, Sri Lanka was sharing a far better advantage in comparison to India and other countries like China and Indonesia. A similar pattern was observed in coffee exports also, where India had been found losing its comparative advantage to other coffee exporters like Vietnam and Indonesia.


Sarada et al. (2006) estimated the relationships between seafood exports instability and its determinants namely commodity concentration, geographic concentration, instability in fisheries GDP, instability in non-fisheries GDP and shrimp production. They also estimated the long-run model on instability index of seafood exports, which indicated one unit increase in the geographic concentration increases 4.9 units in instability index of Indian seafood exports. The impact of instability due to non-fisheries GDP was more compared to instability in fisheries GDP as reflected by the magnitude of coefficients. In this study co integration analysis was employed to find out the market integration. The data used were domestic prices and international prices of select spices.

Mahadevaiah et al. (2005) studied the changing pattern of raw cotton exports from India during pre reforms period (1981-82 to 1990-91) and post reforms period (1991-92 to 1998-99) using Markov Chain model. The transition probability matrix estimated for both the periods showed that China was the only stable importer of Indian Cotton with retention probability values of 0.0832 and 0.3155 during pre and post reforms periods, respectively. The other traditional importing countries such as Bangladesh, Germany, Indonesia, UK, Japan and Korea had recorded low retention probabilities in both the periods.

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Ganassamurthy.V.S and Manikam.S (2003)\(^5\) in this study an analysis of WTO and its impact an India’s foreign Trade found that after WTO exports and imports and trade balance showed a decline trend to increase exports they suggested that Indian export should acquire high degree of competitiveness by adopting new technology for international level.

Suseela and Prasad (2003)\(^6\) examined the proportion of turmeric exported from India to different countries over a time and changing pattern of trade. Markov chain model was applied to analyze the direction of trade and the results showed that USA was the major importer of Indian turmeric followed by UAE, UK, Iran, Bangladesh and Japan.

Hugar (2002)\(^7\) studied the changes in the share of exports of onion from India to different countries. He has used the Markov model with first order finite Markov chain property to analyze the export shares by countries and forecast the export of onion, which follows stochastic process. The share of export of onion to a particular country at time t was considered as a random variable. Minimum absolute deviations estimation procedure was used to estimate the transition probabilities \(P_{ij}\) i.e. probability of share of export to \(j^{th}\) country from \(i^{th}\) country. Using this one step transition probability, shares of major importers of onion from India were compared with observed export shares. One step and five step transition probabilities were also found to predict the export shares of countries for one

\(^5\)Ganassamurthy. V.S. and Manickam.S. Made an analysis of WTO and its impact on India’s foreign trade. Facts for you February 2003 pp31-33


year and five years after the base year. This result indicated that Malaysia and UAE were loyal markets of onion export from India.

**Kuruvila (2001)**\(^8\) inferred from multiple co integration analysis that per capita agricultural GDP, agricultural exports, Gross capital formation in agriculture, index of agricultural production and trade policy were found stationary at their first difference and co-integrated with three co integrating vectors. He also found that the per capita GDP growth was largely explained by its own shocks; about, 89 per cent of variance in output growth was explained by its own innovations.

**Mahesh (2000)**\(^9\) analyzed the direction of trade of Indian tea exports for the period from 1979-80 to 1998-99 using Markov chain model. The transition probability matrix values indicated that the countries like United Kingdom, USSR, Iran, Saudi Arabia and 'other countries' retained their previous shares of Indian tea while of the countries like Germany, Poland and USA could not retain their previous shares of Indian tea trade.

**Mandanna et al. (1998)**\(^10\) analyzed the structural change in India’s tobacco exports for the period from 1980-81 to 1994-95 using Markov chain analysis. The study revealed that the' USSR, the largest market for un-manufactured Indian tobacco showed a high degree of loyalty. The markets of Western Europe, Asia, and the Middle East had taken the place of the USSR. However in the case of manufactured product, only cigarettes

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had a dominant presence in the export basket. The diversification of export markets was clearly evident, necessitating efforts in the direction of brand building for Indian tobacco.

**Mani and Chakojose (1997)**\(^{11}\) conducted a study on export of cardamom stated that the cardamom yield was low and there were frequent fluctuations in field during the study period. The study found that the trend in the export of cardamom has come down drastically due to high cost of production, low quality and effective entry of Guatemala in this trade. The major problems faced in the Indian cardamom exports were low productivity, Taxes related issues, re-plantation problem, high rate of export duty per-shipment problems and limited storage facilities in the ship.

**Nagaraja (1997)**\(^{12}\) analyzed the direction of trade of Indian horticultural commodities exports by employing first order Markov process which helped in identifying the gains and losses in export value. It revealed that other fresh fruits, vegetables and processed fruits and vegetables export altogether retained 68.5 per cent; onion and garlic retained 68.5 per cent and 24 per cent, respectively. The results indicated that grapes, onion and mango juice sustained their original share of 59.8 and 49.0 per cent, respectively.

**Mamatha (1996)**\(^{13}\) estimated the growth rate of production and export of selected spices for the period from 1970-71 to 1991-92. The spices considered were pepper, chillies, turmeric and ginger. She found that the positive growth rate in respect of production and export of the selected spices, was mainly due to the increased domestic

\(^{11}\) Mani and Chako Jose “Trends in the exports of cardamom problems and prospects” *Agricultural Situation In India*, 1997 Vol 8 No 8 pp.106-111


\(^{13}\) Mamatha, B.G., “Techniques for measuring export competitiveness of agricultural Commodities”. *Seminar Report*, Department of Agricultural Economics, University of Agricultural Sciences, Bangalore 1996.
production and demand for these spices in the international market. The increased domestic production and exports were attributed to the several measures taken by the Spices Board such as improved method of production, distance for the export of spices, setting up of facilities for upgrading quality and technical advice on scientific post harvest operation and procuring.

**Krishnan and Sharma (1995)**\(^{14}\) analyzed the geographical concern of Indian seafood exports. Japan and USA constituted the major markets for Indian frozen shrimps. The composition of Indian seafood exports showed predominant dependence on frozen shrimps as their flagship product. The cross-sectional year-wise share percentage of the total market for frozen shrimps in Japan and USA was studied. India enjoyed more than 15 per cent share of the Japanese market in 1982 and 1986 but slipped to medium bracket retaining only 13 per cent of market share in 1992.

**Chacko Jose (1994)**\(^{15}\) made “a study on production and export of cardamom in India”. This study indicated that India was the world’s largest producer of cardamom until (1979-80) and its position came down diminished in the subsequent years due to a number of factors. There had been occasional small hikes and frequent sharp slumps in production. The fluctuations in the production of cardamom the year was mainly attributed to the vagaries of nature. Due to the low production of cardamom the exports have decreased. However, in 1990-91 and 92-93 there had been significant increase in export.


Jalajakshi (1994)\textsuperscript{16} indicated the changing pattern of Indian shrimp exports between two periods namely 1970-71 to 1979-80 and 1980-81 to 1989-90. During 1970-71 to 1979-80, India could not retain its previous market share in the EEC countries. Nearly 90 per cent of India's share was directed to Japan and seven per cent to the UK. But during 1980-81 to 1989-90 India could retain 11 per cent of its previous market share in the BEC countries due to the gradual acceptance of tropical shrimps in these countries.

Lakshiminarayana (1993)\textsuperscript{17} made an attempt to study the direction of trade of Indian silk exports by employing first order Markov process. The major importing countries considered for the analysis were USA, West Germany, UK, France, Italy and Japan. He found that exports to USA were very stable and would remain highly loyal to Indian silk. In addition the results indicated that the export of silk from India to UK, West Germany and Japan would switch over to USA over a period of time.

Hazel (1984)\textsuperscript{18} assessed the sources of increased instability in cereal production in India and USA. The results indicated that recent growth in India and US cereal production being accompanied by more than proportionate increase in the standard deviation of production. This study applied variance decomposition procedure using state wise data on crop production to analyse the sources of increased instability. It was found that the covariance in production between states and crops was high in view of increased yield variability and a loss


in offsetting patterns of variability between crop yields in different states. These changes were associated with variable prices, high yield technologies and narrowing genetic base.

Parathasarathy (1984)\(^{19}\) measured the growth rates and instability in agricultural production for different districts of Andhra Pradesh. He used Schultz’s (1953) year-to-year variation as one of the approaches to measure instability. He concluded that the degree of instability in agricultural production was high in all districts. It was higher for food grains than for ‘all groups’. The districts of north coastal Andhra combine high instability with low growth. Nalgonda district in Telungana was rather unique in having experienced high growth rates of production with low instability. The post green revolution period showed a higher degree of instability. The districts which achieved higher growth rates were also subject to greater instability.

**Section II**

**STUDY RELATED TO SPICES (PEPPER) EXPORT**

Jayesh (2010)\(^{20}\) in his study on “Production and Export Performance of Selected Spices in South India: An Economic Analysis”, indicated that Russia (64%) and USA (59%) were the stable and loyal markets for Indian pepper. As revealed by the values of probability retention, Japan (0.2530) is the most reliable and stable markets for Indian cardamom. It was predicted that the market share of Indian pepper exports to Russia and USA could increase to 24.95 and 34.96 per cent, respectively by 2009-2010. The study


further revealed that the market share of Indian cardamom export to Japan would increase to 47.25 per cent during 2009-10 mainly because of their preference for Indian spices.

Krishnadas M. (2010)²¹ in his study “Production and Export Performance of Major Indian Spices - An Economic Analysis” The revealed that the growth in area under chilli was found to be negative, while production showed increasing growth due to increased productivity. The area, production and productivity of black pepper and turmeric showed positive and significant growth. The coriander area growth was found to be meagre, while production showed productivity led growth. The growth in productivity of cumin was found to be negative, while production showed area led growth. The black pepper and production were found to be more stable than other spices. The exports of chilli, turmeric, cumin and coriander in terms of quantity and value were found to be increasing. The growth of export earnings of black pepper was found to be increasing, while the volume of export was declining. The export shares of the spices to major destinations were also found to be declining. Based on the findings of the study it can be concluded that the emphasis should be given for promotional programmes to augment the area under chilli and coriander. There is a need to improve productivity of spices by developing improved production technologies and suitable improved varieties. Productivity and area should be stabilised through crop insurance scheme for spices to protect the producers from price fluctuations. Appropriate measures should be taken to augment and stabilise the export earnings from spices.

²¹ Krishnadas M “Production and Export Performance of Major Indian Spices - An Economic Analysis” PhD Thesis University of Agricultural Sciences, Dharwad Karnataka State, India 2010
Hema M, Ranjit Kumar and N.P. Singh (2007) in their work titled on “Volatile Price and Declining Profitability of Black Pepper in India: Disquieting Future” found out that during the past three decades, spices in India have shown tremendous potential. Area under all spices has almost doubled, from 1.32 million hectares in early 1970s to 2.52 million hectares in 2002, while their production has almost quadrupled from 0.78 million tonnes in 1972 to 2.97 million tonnes in 2002. But, the increase in production of black pepper has faltered behind other spices and it has achieved less than triple jump during this period. Like other major spices, the production of black pepper in India has increased substantially over the years due to its growing importance in both domestic and international markets. However, pepper has very dubious distinction as the yield of this crop has not improved appreciably during the past three decades. While analyzing the determinants of spice production, it has been observed that area under the crop and lagged export quantity has been the main drivers influencing pepper production in the country.

Nair (2006) highlighted that the north-eastern states in India, which are geographically and climatically suitable for growing spices are slowly emerging as a significant contributor to the spices production in the country. These states were hitherto growing mainly ginger and turmeric, are now cultivating pepper. However, poor marketing and post–harvest processing facilities have become major constraints for the growth. Given this situation, the north–east Horticulture and Agriculture Development Association suggested setting up a north–east marketing organization for better marketing,

which could procure material from small farmers and supply spices in bulk to exporters and the domestic market. It had also requested the centre to include spices and spices products in the list of items eligible for transport subsidy.

Shinoj P. and V. C. Mathur (2006)\(^\text{24}\) in their study titled on “Analysis of Demand for Major Spices in India” say that India is the largest producer, consumer, and exporter of spices in the world. The demand scenario for major spices in India has been comprehensively examined in the study. The shift in preferences of domestic consumers for food items, increasing urbanization and rising incomes, altered demographic and social factors and the changes in productivity of spices brought about changes in the pattern of their consumption and demand. A two-stage budgeting framework, which is a recent development in the theory, of demand with quadratic terms of total expenditure / food expenditure and was considered as an appropriate technique for computing the expenditure elasticities, employed to work out the expenditure elasticities for spices in India. The resultant expenditure elasticities ranged between 0.40 and 0.60 and did not show much disparity across different income classes or regions and over the years. Also, the household consumption demand projections for important spices in the country for the years 2005, 2010 and 2015 showed that the domestic demand for spices would increase further in the coming years.

\(^{24}\) Shinoj P. and V. C. Mathur “Analysis of Demand for Major Spices in India” Agricultural Economics Research Review Vol. 19 July-December 2006 pp 367-376
Peter et. al. (2005)\textsuperscript{25} have highlighted that varied agro-climatic situations prevailing in India are suitable to grow almost all spices, especially pepper whenever there is a wide gap in demand and production of spices.

Suresh Babu (2004)\textsuperscript{26} made a study pertaining to production of spices in India. The total quantity of spices export was registering a minimum of 109636 tonnes in 1990-91 and a maximum of 2,45,000 tonnes in 2001-02. The quantity of spices export to SAARC countries were registering a minimum of 14191.94 tonnes in 1989-90 and a maximum of 76602.46 tonnes in 1998-99. During the year 1990-91 it recorded a positive growth rate with the maximum of 08.76%. The growth rate of total spices exported to SAARC countries had shown a declining trend during the period of 1989-90 and 2001-02. It was concluded that co-operation needed between central and state government to plan agricultural production in a proper way for domestic production and export promotion.

Peter et. al. (2004)\textsuperscript{27} in their study about the future prospects of spices suggested that the promotional activities for organic spices production have to be strengthened to capture the growing world organic market. They also reported that the cost of certification of organic spices was probably high and beyond the capacity of an average Indian farmer and it has to be brought down to a reasonable and affordable level.

\textsuperscript{25} Peter V, EV.Nybe and V.S. Sujatha “Touching an All Time High”, \textit{Survey of Indian Agriculture}, 2005, Published by ‘The Hindu’, p. 74

\textsuperscript{26} Sathees Babu “A Study on area production and productivity of pepper in Kerala” \textit{PhD thesis} Maghatmagandhi University Kottayam, Kerala 2004.

\textsuperscript{27} Peter K.V, Nybe and T.V Thanuja, Kerala University “Future Prospects”, \textit{Survey of Indian Agriculture}, Published by ‘The Hindu’,2004 p. 56.
Rajesh (2003)\textsuperscript{28} studied the direction of trade of major spices from India during pre-liberalization period (1981-82 to 1990-91) and post-liberalization period (1991-92 to 2000-01). The results showed that USA had a high retention power (\textit{i.e.} 0.8083) in pre-liberalization period for pepper compared to post-liberalization period (0.3188). Japan and Saudi Arabia had high transition probability values of 0.5500 and 0.4921 respectively in retaining cardamom export from India during pre-liberalization period. Pakistan, Bangladesh and Saudi Arabia had a retention power in ginger trade during post-liberalization period with transition probability values of 0.6387, 0.5032 and 0.5488, respectively.

Rajesh et al. (2002)\textsuperscript{29} studied the trend in export of major spices in India for the period 1970-71 to 1999-00 and found that black pepper registered a positive annual growth rate of 2.38 per cent in quantity and 12.78 per cent in value. While large cardamom registered 12.76 per cent of export quantity and 21.4 per cent export value, ginger registered 4.05 per cent growth in quantity and 10.15 per cent in value. Turmeric export registered 4.14 per cent in quantity and 13.08 per cent in volume during the period under study.

Kuruvila (2001)\textsuperscript{30} studied the export performance of pepper during global scenario. The growth rate on pepper production and export were 0.66 per cent and 4.26 per cent, respectively. These growth rates were far below to Vietnam's growth rates of 13.40 per cent and 7.84 per cent in production and export during 1990-2000. However, Brazil, Indonesia and Malaysia had negative growth rates during the same period in production and export.

\textsuperscript{28}Rajesh S.R. "Export Performance of Major Spices in India" Agricultural Economic Research Review 2004 Vol 17 issue 1 pp 141-142
Sreekantan Thainpy (1998)\(^{31}\) in his study “Organic Only Way” pepper organic the only way advocates that organic farming is the only way for the scope of India’s spices from the impending failure. He pointed out the changing attitudes of the developed nations towards agricultural practices. In his opinion, the judicious exploitation of technology and adaptation of eco-friendly cultivation practices would help to regain the glory of Indian spices as in ancient periods.

Mamatha (1996)\(^{32}\) estimated the growth rate of production and export of selected spices for the period from 1970-71 to 1991-92. The spices considered were pepper, chillies, turmeric and ginger. She found that the positive growth rate in respect of production and export of the selected spices was mainly due to the increased domestic production and demand for these spices in the international market. The increased domestic production and exports were attributed to the several measures taken by the Spices Board such as improved method of production, distance for the export of spices, setting up of facilities for upgrading quality and technical advice on scientific post-harvest operation and procuring.

Sinha Roy and Nair (1994)\(^{33}\) analysed the international trade of pepper and price variations using co-integration analysis. India along with Indonesia, Malaysia and Brazil enjoyed the oligopoly power in the world pepper market. The study attempted to examine whether the Indian pepper price reflects the international market conditions. The monthly spot price series for India, Indonesia and Brazil were checked for stationarity in terms of

\(^{31}\) Sreekantan Thampy P.S. “Organic the only way” *Spices India* Vol XI March 1998 p 5


Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) methods: These price series found to be stationary at the second difference. The results showed that prices of pepper for the different countries have moved synchronously indicating integration of world pepper market.

Baharumshah and Habibullah (1994)\textsuperscript{34} employed the co-integration technique to analyze the long-run relationship between pepper prices in six different markets in Malaysia. The co-integration technique was applied to weekly pepper prices for the period 1986-91. The empirical findings of the study indicated that regional pepper markets in Malaysia were highly co-integrated and the prices of pepper tended to move uniformly across spatial markets indicating competitive pricing behaviour.

Sinha Roy and Nair (1994)\textsuperscript{35} revealed that due to the open trade status for pepper, the prices have moved synchronously indicating the integration of prices in the world pepper market. And also studied whether the movements in the international prices of Indian pepper had reflected the variations in prices in other exporting countries during the 1980s and also whether the domestic prices of pepper had moved synchronously with international price. The results revealed that due to the open trade status for pepper, the prices have moved synchronously indicating the integration of prices in the world pepper market.

\textsuperscript{34} Baharumshah, A. Z. and Muzafar Shah Habibullah, Price efficiency in pepper markets in Malaysia: A co-integration analysis. \textit{Indian Journal of Agricultural Economics} 1994 Vol 49(2) : 205-216

Teromi and Ramanathan (1993) noticed significant changes in the direction of pepper exports from India for the period of 1975-90. It was observed that nearly 44 per cent of India’s pepper exports were directed to former USSR, which constituted about 82 per cent of the total pepper imports of that country. On the other hand, India not only failed to increase its exports to USA in tandem with increased consumption in that country but also could not sustain the quantity exported in the past years. Instability in export was low in case of former USSR, Italy and Canada and higher for Poland, USA and Czechoslovakia.

Ramesh (1990) in his thesis “Volume of Trade and its Impacts on the Economic Developments of Kerala” made a compressive study of the role of trade in Kerala’s economy including the structure and composition of Kerala’s foreign trade and the interstate commodity flows. Spices are prominent export products and hence, their trade significance was discussed in detail. This study pointed out the scope and potentials for spices of Kerala and also highlighted scope for other products of Kerala.

Meena Benjamin (1988) studied the problems and prospects of exports of value added spices in general and spice oils and oleoresins in particular, in her project report entitled “Problems and Prospects of Export of spice oil and Oleoresins from India” The study covered the processing of spices, oils etc. major market trends in export, and distribution problems of value added spices. The study gave some valuable indications about the future possibilities of spices relating to processing and value additions.

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36 Teromi and Ramanathan “Direction of pepper exports from India for the period of 1975-90” Indian Journal of Agricultural Marketing 1993Vol 1 No 3 pp7-12.
Gopinatha Menon (1988) in his thesis ‘Processing procurement and marketing of pepper with special reference to Co-operative Sector’, made a detailed study of the various aspects of production processing and channels of marketing pepper in both domestic and international market. Suggestions were made for improving the return of the producers and traders. However, the study was mainly intended to analyse the role of Co-operative Societies and to observe the future scope for co-operative sector in the field of pepper marketing. The study did not consider marketing problems of individual cultivation and traders.

Baby Jacob (1985) in his thesis ‘Export development of Kerala’, studied the export performance of Kerala, analyzing the trends and problems and also made a comprehensive analysis of the then prevailing export policies of the Government. The performance of pepper and cardamom, being major export items were evaluated well and remedial solutions were recommended to the problems of major export items including pepper and cardamom.

Thomas (1984) in his report ‘Standardization techniques for retention of green colour in pepper’, explored the possibilities of maintaining green colour in processed pepper by standardizing the techniques. The study has covered the market requirements of pepper particularly in European countries and proves that Europeans always prefer to get spices in their natural form and color. The findings of the study are still significant because the methods suggested are highly helpful to increase the export volume of processed pepper.

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Jose (1978)\textsuperscript{42} in his thesis “Problems and Prospects of India’s Major Spices” made an overall study about the problems and future possibilities of major spices such as pepper and cardamom. This study analysed the problems in the agricultural sector in general and about the problems in the spices sector in particular. He found that pepper and cardamom have considerable significance in the economy of the state of Kerala and the problems of the sector would affect the foreign exchange reserves of India.

Above reviews have brought to focus the significant role played by the pepper industry in global economy and also the considerable expertise developed in Indian pepper industry. In spite of pepper in the total spices trade, the country enjoys a fairly prominent position in the world pepper market. After globalisation, no study was found considering two decades date on pepper production and export performance. Therefore, an effort in this study is being made to analyse the pepper export of India in the process of globalisation.

\textsuperscript{42} Jose C.A “Problems and Prospects of India’s major Spices \textit{PhD thesis}. Cochin CUSAT.1978.