

Eriophyid Mite Infestation on Coconut in West Bengal

Eriophyid Mite in coconut has been a cause of serious concern to the coconut farming community since it was reported from Kerala in 1998. Now its infestation is slowly spreading from south India to the states of West Bengal and Maharashtra. Dr. Apurba Bandyopadhyay and Dr. H. H. Khan report the status of mite infestation in West Bengal.*

Coconut is a traditional crop of India with an annual production of 12597 million nuts from an area of 18.40 lakh ha. Barring the southern states, which contribute to about 90 per cent in area and production, coconut is grown from time immemorial in West Bengal, Orissa and Assam. In West Bengal coconut is mostly grown in the homesteads in the 16 districts and contribute to about 28,000 ha in area with a productivity of 13,899 nuts/ha. The annual production is estimated to be around 389 million nuts. The important coconut growing districts and their production potential is listed in Table 1.

In all these districts the cultivation is mainly scattered in the homesteads, as a backyard crop or on field bunds or cropped mixedly with banana, mango, arecanut, etc.

There are no serious pest and disease problems of coconut in West Bengal except for mild infestation by rhinoceros beetle, which exhibits characteristic fan like cuttings on the emerging leaves. In few localities with drainage problems, stem bleeding is observed. Recently eriophyid mite infestation in coconut has been suspected based on the symptoms observed on the tender coconut received from different areas from the state to the wholesale market in College Street and Deganga. The symptoms were characteristics of eriophyid mite injury on coconut such as triangular yellow-

patches originating from the region covered with tepals of the perianth and in advanced stages a sort of warting on

As judged by the nature of spread of the Eriophyid mite in the other states it is expected that the mites may also spread to newer palms and thereby causing anxiety to the farmers who entirely depend upon sale of tender coconut for their sustenance

the developing nuts possibly due to drying of the tissue consequent upon withdrawal of the moisture from the area.

It is understood from the literature that the first infestation of coconut by eriophyid mite was seen in Kerala in the early 1998 from where it is believed to

have spread to south and north eastern part of Kerala and to Tamil Nadu (1998), Karnataka (1999-2000), Lakshadweep (1999-2000), Andhra Pradesh (2000), Orissa (2001), Maharashtra and Goa (2002). From the symptoms recorded in the nuts on the palms and nuts arriving in the markets it appears that the mite infestation was there in West Bengal from the later part of 2002.

A quick survey of some of the major coconut growing areas in West Bengal indicated that the problem prevails in the following coconut growing tracts :

24 Paraganas North district areas like Deganga, Jadurhati, Swarupnagar, Baduria, Madhyamgram, Palta Barrackpur, etc.

24 Parganas South district areas like Narendrapur, Baruipur, Kulpi, Amtala, Diamond Harbour, Kakdwip, etc.

Nadia district areas like Anandapur, Chakdaha, Haringhata, Ranaghat, etc.

Howrah district areas like Uluberia, Amta, Bagan, etc.

Hooghly district areas like chandannagar, Chinsurah, etc.

Symptoms

The symptoms of attack are manifested approximately one month after initial colonization. At this stage a small hallow develops around the edge of the perianth covering the button. A few days later, the hallow near the perianth develops into triangular, yellow discoloration pointing towards the distal end. The yellow discoloration so developed leads to formation of brown dried stripes (warts)

Table -1 Area, production and productivity of coconut in different districts of West Bengal (2000-01)

| Name | Area (Ha) | Production (Lakh nuts) | Productivity (Nuts/ha) |
|-----------------|--------------|------------------------|------------------------|
| 24 Parganas (S) | 4500 | 542.55 | 12,056 |
| 24 parganas (N) | 2940 | 382.20 | 13,000 |
| Howrah | 3030 | 534.79 | 17,649 |
| Hooghly | 925 | 169.29 | 8,301 |
| Nadia | 850 | 129.29 | 15,210 |
| Murshidabad | 4650 | 485.25 | 10,435 |
| Midnapore (E) | 4020 | 795.96 | 19,800 |
| Midnapore (W) | 2230 | 234.15 | 10,500 |
| Others | 4855 | 618.26 | - |
| Total | 28000 | 3891.74 | 13,899 |



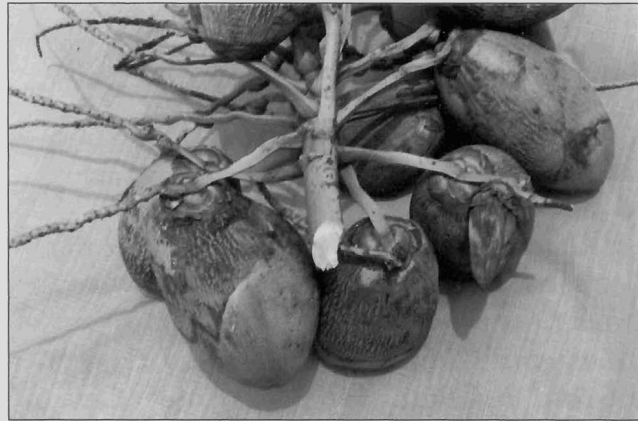
probably due to loss of moisture from the tender tissues. In some of the nuts examined in the College Street, Deganga and Amtala wholesale markets, in about 2 to 5 per cent of the nuts, the husk near the perianth has developed cracks, cuts and a sort of formation of gum. Snap observation in the farmers field has also indicated mild infestation in scattered palms. However, the eriophyid mite in the areas surveyed does not affect contiguous areas of coconut palms.

The farmers call this symptom as "Safeda Dag" and are concerned that the marketable value of produce is reduced due to this infestation. In the tender coconut markets such nuts, which have even a mild infestation are separated from the bulk of the nuts kept for auction. The traders from Kerala, Bombay, Ahmedabad and Delhi markets do not prefer such infested nuts and such nuts are only sold locally.

A rough assessment of the tender coconut market indicates that about 1.5 to 2 million nuts are traded daily in these three prominent markets of which about 70-80

per cent is sent to other states through commission agents. As judged by the nature of spread of the eriophyid mite in the other states it is expected that the mites may also spread to newer palms and thereby causing anxiety to the farmers who entirely depend upon sale of tender coconut for their sustenance. So far no effort has been made by any developmental agency in the state to have an assessment of the extent and nature of spread of the eriophyid mite infesting coconut.

Majority of the farmers are not aware of the symptoms and the likely damage the mite can create in their economic life. It is the right time for the Govt. of West Bengal to have an assessment of the mite incidence and to educate the farmers on some of the non-insecticidal measures to control the spread of the mite. Interestingly it has been observed in majority of the cases the infestation is



Mite affected bunch

mild and has disappeared without causing much damage to the developing nuts. This may be due to presence of natural enemies like predatory mites and fungal pathogens like *Hirsutella thompsonii*. However this calls for a study on association of predatory mites and the fungal pathogen in West Bengal region.

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A Timely Advice Proves Worthy

A message - 'Prove your worth to be successful' emulated by Shri. P. P. Ahamed Kutty, has been a key to transforming a loss-making industry, Miracle Food Processors International Limited, to march ahead for prosperity. A success story of Shri. P. P. Ahamed Kutty, Managing Director, Miracle Food Processors International Limited is told by Smt. Mini Mathew, Sub-Editor, of the Coconut Development Board, which reveals how he took up the new industry, what kind of problems he faced and how the Chairman, Coconut Development Board inspired him to develop a confidence leading to extended market in India and abroad. Excerpt of the interview.

As one of the leading entrepreneurs in coconut based industry, Shri. P.P. Ahamed Kutty, Managing Director of Miracle Food Processors International Ltd. in Perinthalmanna, Kerala explains his hurdles in life, the path he travelled with thorns and stones and the success he attained through *Indian Coconut Journal*. Basically a chemical engineer by himself, an ex-officio from Hindustan Latex, Shri. P.P. Ahamed Kutty entered into the business field by taking up the opportunity as a challenge. Hardworking and God fearing Ahamed Kutty is always keeping the message of prophet Mohammed Nabi as a slogan in his mind. "For him who fears God, he will appoint a way out and he will give him provision from unimagined source". He revealed that from the year 2000 onwards he got much confidence to run his coconut concentrate unit due to the moral and financial support from Dr. H.P. Singh, the present Chairman of CDB and Dr. P. Rethinam the then Chairman of CDB. The message of Dr. H. P. Singh - "Mr Kutty, you will be

wasting your time by running after people / officers and begging for help. If you prove your worth, then only people will come to you with helping



Shri. Ahamed Kutty is being interviewed by Dr. R. K. Singh, Chief Coconut Development Officer and Smt. Mini Mathew, Sub Editor of CDB

hand". Mr. Ahamed Kutty seized this opportunity and march ahead with full confidence.

What prompted you to go for coconut water concentrate industry? Which technology you have adopted to do this venture?

After establishing the rubber industry I was searching for a unique and novel technology for diversification

and happened to see an advertisement about the latest spray evaporation technology at room temperature in a newspaper. I got the technology through a private trading agency, Safety Handels GmbH, Germany. The original manufacturer is Winter GmbH; who is our collaborator in Germany. Pineapple concentrate was our initial product using this technology. The concentrate made out of this plant failed in sample analysis when it was exported to Germany. Traces of synthetic pesticides were detected in the sample and the product was rejected. Toxic content was 90 per cent more than the permissible. Besides, we were unable to purchase the raw material due to the price fluctuation. Since pineapple is a seasonal fruit the price was increased from Rs.5 to 12/kg. We were unable to sell the products in the market because of these troubles. Thus we were forced to switch over to alternate fruit. Initially we started tender coconut water concentrate. Even if we produced the product satisfactorily retaining the original qualities, we could not proceed with tender coconut water since the marketing expenditure for the product is more than the manufacturing cost. Thereafter our attention was drawn towards green coconut water, since it is available in large quantities from other coconut based industries. Value addition of such a major by-product like green coconut water can be done through this concentrate.

What is the marketing strategy adopted by you? Whether the product is being exported? If so, what is the income derived from the foreign exchange?

At present we are appointing C&F agents and super distributors in different areas for marketing our products like coconut water concentrate,



coconut jams and coconut pulps. We are also promoting installation of dispensing machines in the crowded centers in the country for dispensing coconut water concentrate at the rate of Rs.5 per 150 ml glass. Feed back obtained in this regard is so encouraging. We have got very good response from North India when we participated in exhibition, fairs and coconut festivals in Rajasthan, Patna and in Chandigarh organised by the Board. We are popularizing the coconut water as a common man's drink by installing dispensing machine in crowded centres, operated by unemployed persons like widows and partially disabled. In association with the Coconut Development Board, we have already placed 27 kiosks with dispensing machines in major towns. Each kiosk can able to sell 100 glasses of diluted coconut water per day. It will make a minimum profit of Rs.250 per day. We are now adopting this method not only in different States in India but also in Saudi Arabia, UAE and other Gulf countries. We expect a considerable off-take of coconut water concentrate by adopting this method. We supply concentrate in bulk packing of 5 kg, 10 kg and 30 kg to vending machine centers. We are also helping parties to establish bottling units for making ready to serve coconut juice, sparkling coconut water, using our coconut water concentrate. Such bottling units are functioning in

Chennai, Palakkad, Thiruvananthapuram, etc and more units are being established in Hyderabad, Delhi and in the state of Gujarat and in Saudi Arabia. We are exporting coconut water concentrate, coconut jam and ready-to-serve drinks like sparkling coconut water, coconut Jam in 250ml and 500 ml. pet bottles. We have developed a range of consumer packs of green coconut water based drinks and coconut jam with an outlook on consumer perspective. The MRP of 200 ml coconut water concentrate pouch costs Rs. 8; 250 ml pet bottle costs Rs. 12; 500 ml pet bottle costs Rs. 18; 500 ml carbonated sparkling drink costs Rs. 20; 1 kg concentrate comes for Rs. 220; ½ kg concentrate costs Rs. 60; 500 gm coconut jam jar costs Rs. 47 and 350 gm jam costs Rs. 35. We have exported the products worth more than Rs. 30 lakhs in the recent past.

Recently you participated in the exhibition organized in connection with the COCOTECH meeting in Sri Lanka. What was the opinion about your products?



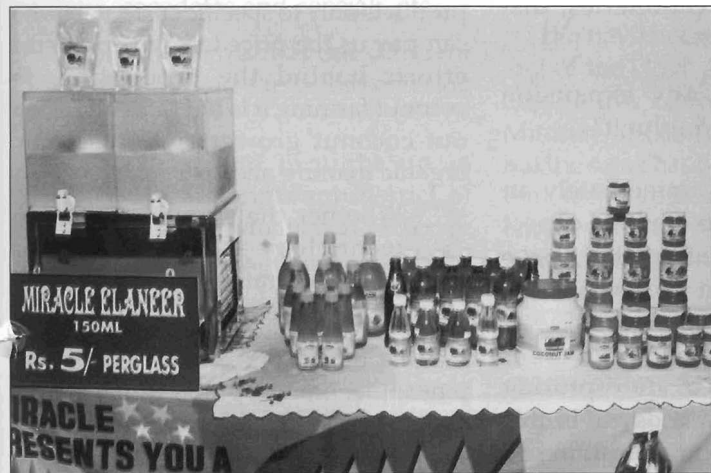
Shri. Lakshman Kiriella, Minister of Plantation Industries, Sri Lanka observing the products of Shri. Ahamed Kutty. Dr. H. P. Singh, Chairman, Coconut Development Board and Dr. P. Rethinam, Executive Director APCC are seen

We were able to compare the quality and overall presentation of the available products else-where in the world. We have received a very high appreciation from all the participants and especially the Minister of Plantation Industries, Sri Lanka, Secretary to the Ministry of Plantation, Sri Lanka and senior scientists in coconut field from various countries who tasted the samples. The feed back was encouraging. Moreover, we also got an opportunity to present before the participants about the advantages and uniqueness of the technology and versatility of the concentrate which evoked a lot of enquiries from different countries for supplying the technology and machinery on turn-key basis. The Govt. of Sri Lanka is also very much interested to set up such a unit and the concerned minister invited me for a detailed discussion and requested us to send a detailed proposal and also promised to visit our plant within 2 months. As far as our unit is concerned, the COCOTECH Meeting was really a great boon.

You are the pioneer in making coconut water concentrate from waste coconut water. Can you describe briefly the process you are adopting in your unit?

We are using green matured coconut water and tender coconut water from 8

The COCOTECH Meeting in Sri Lanka gave us an opportunity to exhibit our various products viz. coconut water concentrate, sparkling coconut water, coconut juice, coconut jam in different flavor, etc. to the participants from different coconut growing countries.



Value added coconut based Miracle food products



INDIAN COCONUT JOURNAL

months old coconut for making Coconut Water Concentrate. Coconut water is collected, transported, filtered, pre-concentrated using R.O Plant and finally concentrated to 62° brix by using latest imported machinery from Germany. The detailed process cannot be disclosed at present as we have applied for patent.

Q Are you facing any problem for collection of coconut water in hygienic form? What are the steps you have taken for procuring the raw materials? What are the procedures you have to do before processing coconut water?

A We are not facing any problem in the collection of coconut water in hygienic condition. We segregate green coconut from the dry coconut and the green coconut are cut and water collected in small buckets. After sieving the same, it is transported in tanks to the plant.

Q We would like to know whether you have franchised the technology for the manufacture of coconut water based soft drinks? If so, how many such units have been commercialized?

A We have already given the technology to parties in Chennai, Palakkad, Thiruvananthapuram, Hyderabad, Mumbai and Saudi Arabia for establishing franchisees for bottling coconut water concentrate based natural drinks both plain and carbonated versions. Three Units are working commercially and other Units are under implementation stage and the commercial production will be started by the end of next month.

Q What are the general problems faced by you while marketing the product within the domestic markets as well as in International markets?

A The main problem faced by us for marketing the product in the domestic and international market is the lack of funds for proper advertisement support. To compete with the multi-national companies and its products, the

marketing campaigns should be more aggressive, but we are unable to afford such huge expenditure for promotional activities. In this connection we would like to request the Coconut Development Board and other Governmental agencies to undertake a general awareness programme on the advantages of using the natural coconut products regularly.

Q Where are the actual markets for concentrate? Who are the target consumers in South India?

A The very idea of making the concentrate is to send the same economically to different places where

coconuts are not available and also to increase the shelf-life of the same. We are actually planning to promote concentrate as a raw material for making various end products like ready to serve drinks, sparkling coconut water, icecreams, deserts, etc. In addition to this, the same can be sold in consumer packs to be distributed through super markets, retail shops, etc. Target consumers are bottling units, hotels, sweet makers, confectioneries, dispensers, etc.

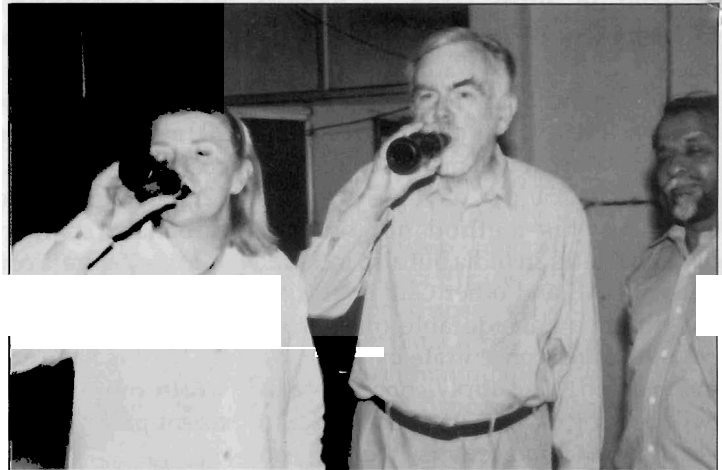
Q Do you have any expansion programme of your unit?

A We are planning immediately an expansion programme as we expect orders for concentrate from the above targeted consumers in and outside the country.

Q Organic products are capturing the markets now a days. In this era of organic farming in agriculture, do you have any intention to market

organic concentrate other than ordinary concentrate, while you have a negative experience in pineapple concentrate due to the pesticide problem?

A We are aware about the importance of organic products. We were the first to get an organic certificate for coconut concentrate from an established firm in Germany and we produced organic concentrate in sizeable quantity and exported the same to Germany. It is very difficult to produce organic products in Kerala's climate because of the high humidity and high temperature. Special care has to be taken in the selection of the palm, collection of coconut water,



The collaborator of Miracle Food Processors, Mr. and Mrs. Winter GmbH drinking coconut water concentrate during their visit recently in Perinthalmanna. Mr. Ahamed Kutty looks on.

processing, packing and transporting to the destination. This is quite expensive. We are therefore producing organic products only to specific customers who can pay us the price to compensate the efforts behind the production. In coconut farming it is not difficult to find out coconut growers who use only organic manure and pesticide.

Q Whether the spray evaporation technology is exclusively for coconut concentrate?

A The same technology can be used for making other concentrates like apple, pineapple, orange, grape, amla, ginger, carrot, passion fruit, etc. All these are seasonal fruits. If we have mobile concentration unit, we can avoid the



transportation cost and reduce the weight of 1 kg of fruit to 10 gram. Besides the shelf life can be extended from 7 days to 18 months, but unfortunately the factories are considered as immovable assets according to the Govt. of India rules.

Q In this era of soft drinks, what is the response of foreign companies towards this product?

Tropicana, the multinational company of fruit juices in America, approached us to provide 6000 tonnes of concentrate. But we are not in a position to meet the requirement. Present capacity of the company is just 300 tonnes. We need 10 lakh coconuts to get that much quantity of concentrate. The main difficulty in this aspect is collection of such a quantity of nuts.

Q What are the processes in making coconut jam?

We use coconuts of 8 months old for making coconut jam. This nut contains 100 - 150 gram of tender nut kernel and 150 ml. of water. After separating the water, the tender kernel is scooped out of the shell and converted into pulp by using homogenizers. Homogenized pulp is then transferred into the jacketed vessel, agitator. Sugar, citric acid and pectin are added at regular interval and then filled in glass bottles. Based on coconut, we are manufacturing various types of jams, viz. cocopina, cocogrape, cocomix, cocodates and cocojak, etc.

Q Can you explain about different stages in your life before entering into this venture.

I was born and brought up in Manchery in Malappuram district of Kerala. I did my graduation in Farooque college, Kozhikode. After successful completion of chemical engineering degree from Kerala University in 1968, I joined Hindusthan Latex Limited, Govt. of India Undertaking Organization, in different capacities. I started my carrier as Supervisor and rose to Plant Manager over a period of

10 years. I resigned this job and started a small scale tread rubber unit in Perinthalmanna. In the year 1985 we started Miracle Rubber Private Limited, the first small scale reclaim rubber unit in India. In 1992, we started another reclaim rubber unit viz. Miracle Elastomer India Ltd.

These units are functioning satisfactorily and are considered as the model units in India for productivity, quality and profitability. During this period, we also established Giant Pretreads Pvt. Ltd. and Savaussabeel Polymers Ltd., for manufacturing conventional and precured tread rubber. These units are also working satisfactorily.

Q It seems that the majority of workers in your units are women. What are the reason behind it?

Women are the vital part of our factory. Among 25 labourers, 20 are local women, who are more hard working, obedient and enthusiastic.

Q Have you received any financial assistance from any other Govt. organizations besides Coconut Development Board?

We have not received any help from any of the Govt. Departments. We are eligible for concessions/grants from Ministry of Food Processing, NHB, etc, but the same has been denied on the plea that we have started the plant earlier and new units are only eligible for such concessions/grants. If the existing units are surviving properly then only the new entrepreneurs will start similar industries. Therefore, we request the Chairman, Coconut Development Board to use his good office and see that we too become eligible for such grants/concessions. We take this opportunity to



Women in bottling works

express our sincere gratitude to Dr H.P. Singh, Chairman, Coconut Development Board for his guidance and whole hearted support since last three years. Only because of his motivation, we were able to reach the present level. Now people from different parts of the world are coming to us enquiring about the technology and the products. We once again express our sincere thanks to all the officers of the Coconut Development Board, especially the Chairman and also the Executive Director of APCC, Dr.P. Rethinam.

Business Opportunity

- A United Kingdom based company involved in trading of various commodity, is looking for some reliable partners who can supply the desiccated coconut on regular basis to them. Interested parties can contact directly to :
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 AGRIPROJECTS LIMITED
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