



Cinnamon fruits

CINNAMON

A SPICE IN GREAT DEMAND

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CINNAMON, *Cinnamomum verum* Presl (formerly *C. zeylanicum* Bl.), is the earliest known spice in India and is considered to be a native of Ceylon and Malabar Coast of India. It is being grown in India for the last 200 years. Based on recent reports and actual field survey undertaken by the scientists of the Central Plantation Crops Research Institute, it is estimated that the area under cinnamon in this country is about 350 ha. The cultivated type *C. verum* is confined to the lower elevations of Western Ghats in Cannanore, Calicut and Kottayam districts of Kerala and lower Nilgiris of Tamil Nadu. The Chinese cassia or false cinnamon is obtained from the barks of *C. aromaticum* Nees (formerly *C. cassia*) and is not cultivated in India.

Cinnamomum verum is a bushy evergreen tree belonging to the family

Lauraceae. It may attain a height of about 10 to 15 metres but in cultivation it is generally grown coppiced or cut back in the bush.

Out of the estimated 350 ha of cinnamon, the Nadukani Estate near Taliparamba (Cannanore) and Randatara Estate at Anjarkandi, constitute about 84 per cent of the area. The Nadukani Estate was planted only in 1965 and the yield from this has not made any impact till now in India. The Randatara Estate is one of the oldest estates of cinnamon in Asia, established in 1798 by Murdock Brown of the East India Company, producing quality barks, leaf oil and bark oil. Besides these two large estates, other plantings are confined to isolated gardens and research stations having few trees.

The cinnamon production in India is insufficient to meet the

internal demands and a small quantity is imported. During the last decade the maximum import of 14.2 tons valued at about Rs 1,00,000 was in 1972-73 and during last three years (1972-75) the import was only about 2.5 tons annually.

About 100-120 kg of quills can be obtained per hectare during the first year of harvest after planting, which may increase up to 200-250 kg by the third harvest.

Soil, Climate and Rainfall

Cinnamon is a hardy plant tolerating a wide range of soil and climatic conditions. In the west coast of India, the crop is confined to the laterite and sandy patches with poor nutrient status. It comes well from sea level up to an elevation of about 1,000 m above MSL. Since it is mostly raised as an

unirrigated crop, an annual rainfall of 200 to 250 cm is considered ideal for the crop.

The areas for planting cinnamon are cleared of the shrubs and 45 cm × 45 cm × 45 cm pits dug at a spacing of 3 m × 3 m. The pits are filled with leaf mould and top soil before planting.

Cinnamomum verum is the true cinnamon of commerce. The bark is light acidic in flavour and its removal tends to enhance the delicate aroma of the Ceylon cinnamon. The bark is comparatively thinner, leaves smaller and aroma more intense than that of cassia and of all other species. This cinnamon is priced more in the market.

C. aromaticum trees are not grown commercially in India and the Chinese cinnamon was imported into the country earlier. It is an evergreen native to South Vietnam and Eastern Himalayas. It is a large tree with thicker bark, larger leaves, smaller flowers and fruits than true cinnamon. It is also known as 'Cassia lignea', 'Chinese cassia' and 'false cinnamon'.

Planting Density

The most common method of propagation of cinnamon is through seeds, though it can be propagated by cuttings as well as layers. Under West Coast conditions the cinnamon flowers in January and fruits ripen from June up to August. The fully ripe fruits are either collected from the tree or picked up from the ground. The seeds are removed from the fruit, washed free of pulp and sown without much delay as the seeds have very low viability which is lost rapidly. The seeds are sown in seed beds or tile pots filled with a mixture of sand, cattle manure and soil (2:1:1). Frequent irrigation is required for maintaining adequate humidity and germination of seed starts after 20 days of sowing. Artificial shades are required for the seedlings till

they are about six months old. Ten to twelve month old seedlings are transplanted into the main field. In some cases dibbling of seeds on the surface of pits filled with soil and compost is also being practised. As in the case of other tree spices, the planting of cinnamon is also done during June-July to take advantage of the monsoon for the establishment of the plantation. However, October-November planting can also be practised provided the crop is irrigated during the first year. Partial shade in the initial years is advantageous for healthy and rapid growth and development. Cultural practices followed in the Randathara Estate at Anjarakandy is confined to two weedings a year (June-July and October-November) and digging the soil around the bushes during August-September. Manuring the crop is considered a luxury by the growers and is generally not practised. At Randathara Estate, the cinnamon leaf, after distillation for oil, is used as a mulch in the plantations. The effect of fertilizers on this crop is yet to be assessed. But in view of the quick and rapid growth required for coppicing, the application of

nitrogenous fertilizers may be desirable.

Two to three years after planting the young trees are cut back to induce the formation of lateral shoots. The first harvesting takes place during rainy season after two years of coppicing. The appropriate time for cutting the shoots for preparing the bark is determined with reference to the circulation of sap between the wood and the corky layer. The sap flow generally occurs soon after the onset of monsoon and trained peelers make a test cut on the stem with a sharp knife to judge the time of peeling. If the bark separates readily, the cutting is commenced immediately. The shoot selected for quills with a uniform brown colour of the bark should have at least two years' growth and should be 1 to 1.25 m long and 1.25 cm thick. The rough outer bark is first scraped off and then the young tender inner bark is carefully peeled off. The best pieces of this peeled bark are packed with small pieces of bark, tightly rolled to preserve the flavour and then dried. They are cut into convenient sizes varying from 10 cm to 1.25 m in length. These are known as 'quills'. The quills are graded from '00000' being the finest quality to the coarsest quality '0'. The small pieces of the bark left after the preparation of quills are graded as 'quillings'. The very thin inner pieces of bark are dried as 'featherings'. From the coarser canes, the bark is scrapped off instead of peeling and this grade is known as 'scraped chips'. The bark is also scraped off without removing the outer bark and is known as 'unscraped chips'. The different grades of bark are powdered to obtain cinnamon powder. At Randathara Estate, the following grades of commercial cinnamon are prepared: Superior grade quills, Quillings, Featherings, Special scrape chips, Ordinary scrape chips, Unscraped chips.

The coppiced shoots are left for fermentation for 24 hours and then



Cinnamon in flower



Peeling of cinnamon barks

dried, first in shade for one day and then in the sunlight for four days. During drying, the bark contracts and assumes the shape of quill. The smaller quills are inserted into larger ones to form compound quills.

Processing

Cinnamon leaf oil. On distillation

of the green leaves a clear golden oil or leaf oil is obtained. This is used commercially in the manufacture of cheaper types of perfumes used in soaps, tooth pastes, hair oils and face creams. It is also used commercially as an agent for flavouring liquors and in denticides. The

leaf itself is used as a spice in food preparations.

Cinnamon bark oil. The bark oil is distilled from the bark peeled off from the wood. Since the quantity of bark oil obtained is very little, the oil is very costly and is used in expensive perfumes in European countries. France, Switzerland and Germany are the largest users of this oil. This oil also has pharmaceutical properties and is used in cosmetics and perfumeries.

The leaf oil distilled at Anjarakandy is reported to be of the finest quality fetching a premium price in the international market. The physical properties of the leaf oil distilled in the estate are specific gravity: 1.0551 (15.5°C), 1.04 (20°C); refractive index: 1.5388 (70°C); optical rotation: +0.5° (21°C); phenols (eugenols): 91%.

The fungus *Corticium Javanicum* is found on cinnamon plant during rainy season. It develops a pale

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