

## CINNAMON

**Synonyms:** Cinnamon bark; Kalmi-Dalchini, Ceylon cinnamon

**Biological Source:** Cinnamon consists of dried inner bark of shoots of coppiced trees of *Cinnamomum zeylanicum* Nees, belonging to family Lauraceae. It should not contain less than 1.0 % of volatile oil.

**Geographical Distribution:** Cinnamon, the evergreen tree of tropical area is considered to be native of Sri Lanka and Malabar coast of India. It is also found in Jamaica and Brazil. However, most of the world requirements are met by Sri Lanka and hence true cinnamon is known as Ceylon cinnamon.

### **Chemical Constituents:**

- Cinnamon bark contains about 0.5 to 1.0 % of volatile oil, 1.2 % of tannins (phlobatannins), mucilage, calcium oxalate, starch and a sweet substance known as mannitol.
- Bark yields 14-16 % of 90 % alcohol-soluble extractives.
- The volatile oil is the active constituent of the drug.
- It is light yellow (when freshly distilled) in colour and changes to red on storage.
- Cinnamon oil contains 60-70 % cinnamaldehyde, 5-10 % eugenol, benzaldehyde, cuminaldehyde and other terpenes like phellandrene, pinene, cymene, caryophyllane etc.

### **Chemical Test:**

On addition of a drop of ferric chloride solution to a drop of volatile oil, a pale green colour is produced. With ferric chloride, cinnamic aldehyde gives brown colour and eugenol gives blue colour, resulting in formation of pale green colour.

In cassia oil, brown colour is obtained, as it contains only cinnamic aldehyde.

**Uses:** Bark is used as a carminative, stomachic and mild astringent. It is also used as a flavouring agent, stimulant, an aromatic and antiseptic. Commercially, it is used as a spice and condiment, and also in the preparation of candy, dentifrices and perfumes.

## **MYROBALAN**

**Synonyms:** Chebulic myrobalan, Harde, Haritaki

**Biological Source:** It consists of dried, ripe, and fully matured fruits of *Terminalia chebula* Retzr belonging to family Combretaceae.

**Geographical Source:** Myrobalan tree is found in the sub-Himalayan tracks from Ravi to West Bengal, Assam and in all deciduous forests of India, specifically in Madhya Pradesh, Maharashtra, Bihar and Assam.

**Chemical Constituents:** Myrobalan fruits are an important source of tannin. Depending upon the geographical source, they vary in tannin content and the fruits collected from Madras are very rich in tannin. The approximate analysis of the fruits is as follows:

Moisture -10%; Tannin - 25 to 32%;

Water - insoluble matter - 40 to 50%

The tannins of myrobalan are of pyrogallol type (hydrolysable tannins), which on hydrolysis yield chebulic acid and d-galloyl glucose. Chebulagic, chebulinic, ellagic and gallic acids are the other contents of myrobalan. Myrobalan also contains glucose and sorbitol (about 3.5%). During the maturation of the tree, the amount of tannin decreases, whereas the acidity of the fruits increases.

### **Uses**

Myrobalan is used mainly as an astringent, laxative, stomachic and tonic. The laxative property of myrobalan is due to anthracene derivative present in the pericarp. It is also an anthelmintic. Fruit pulp is used to cure bleeding. It is an ingredient of ayurvedic preparation 'Triphala', used for treatment of variety of ailments. Commercially, it is used in dyeing and tanning industry and also in treatment of water used for locomotives. Myrobalan is also used in treatment of piles and external ulcers.

During 93-94, 94-95 and 95-96 India has exported Myrobalan fruit extract to the extent of about Rs. 218 lakhs, Rs. 325 lakhs and Rs. 284 lakhs, respectively.