

# NEWSLETTER

## Knowledge of herbs – *Cinchona officinalis*

Drug consists of dried stem bark of *Cinchona officinalis* Linn. Family Rubiaceae. The plant is a small tree attaining a height of 3.5 m or even more, cultivated in India, in the Western Ghats and lower Himalayas, in Assam and West Bengal.



Other name: - Unani Tibb- Kanakana, English- Cinchona

Scientific classification:

Kingdom: Plantae

Order: Gentianales

Family: Rubiaceae

Sub family: Cinchonoideae

Tribe: Cinchoneae

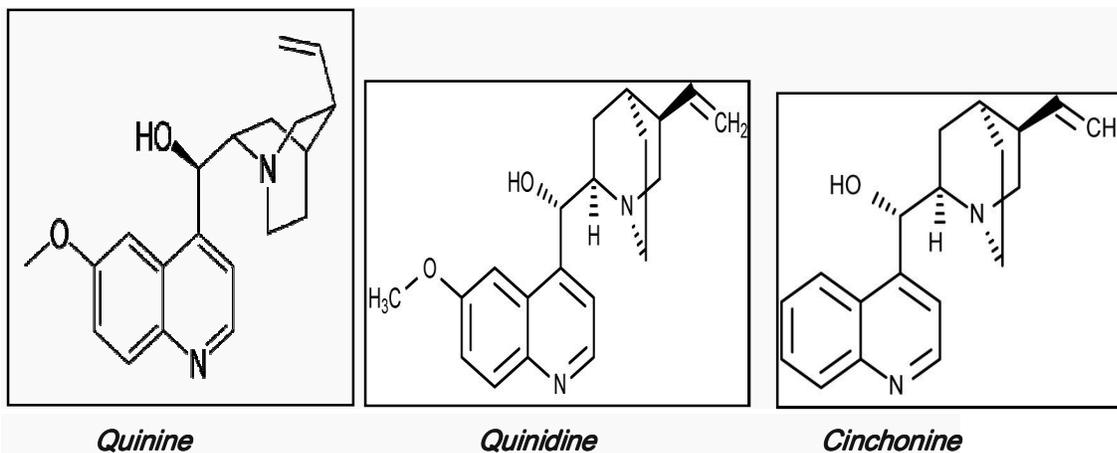
Genus: Cinchona

Description: Stem bark, quilled or curved pieces, thickness upto 1.5 mm: outer surface dull brown and bearing lichens, rough with numerous small transverse cracks with recurved edges; inner surface pale in colour; fracture short in the external layers and fibrous in the inner layers; odour slight and characteristic, taste intensely bitter and astringent.

Drying of cinchona bark:-

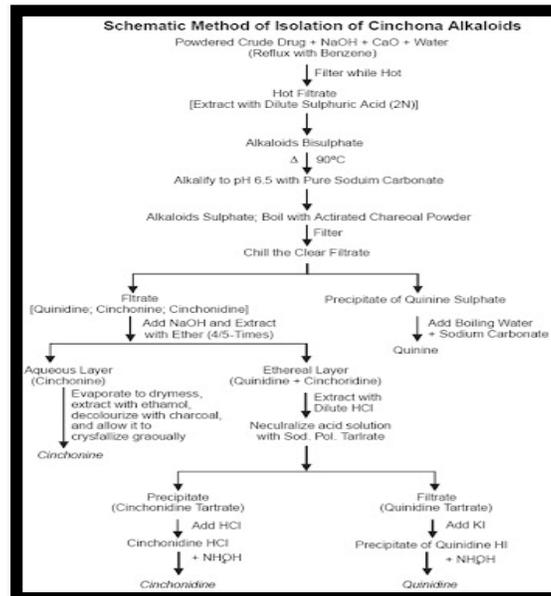


Medical Uses: Quinine is antimalarial; quinidine is antiarrhythmic and cardiac tonic, also used in psychic treatments. The bark shows potent inhibitory activity against polymorphonuclear leucocytes; the activity is attributed to the alkaloids of the bark. Cinchona may potentiate coumarin derivatives. In large doses, it is a sedative to the CNS and cardiac plexus.



Chemical constituents:

Stem bark contains about 30 quinoline alkaloids of which quinine, cinchonidine, cinchonine, quinidine are important. Hydroquinine, Hydrocinchonidine, quiniamine, cinchotine and homocinchonidine, quinic acid, bitter amorphous glycoside quinovin.



Adulterants/ Substitutes: Under the name Cinchona, *C. calisaya* Wedd., *C. officinalis* Linn.f., *C. ledgeriana* Moens ex Trimen and *C. succirubra* Pavon ex Klotzsch are available as mixture and are substitutes for each other. They can be distinguished from each other by the following morphological characters.

1. The stem bark is marked with abundant transverse cracks, which are very numerous and often less than 6 mm apart, while that of *C. succirubra* with well marked longitudinal wrinkles, relatively few transverse cracks and some pieces show reddish warts. Bark of *C. calisaya* is with broad longitudinal fissures; transverse cracks about 6 to 12 mm apart and that of *C. ledgeriana* is similar to *C. calisaya*, but cracks more numerous and less deep. Some pieces show longitudinal wrinkles and reddish warts.

2. Stem bark powder of *C. officinalis* is yellowish in colour while that of *C. succirubra* is reddish brown and that of *C. ledgeriana* is cinnamon brown in colour.

#### Safety Aspects:

Cinchonism, observed as a result of quinine administration, is attributable either to toxic doses or to idiosyncrasy of the patient. The most common symptom is ringing in the ear accompanied by a sensation of fullness in the head.

#### Reference:-

1. The wealth of India-Raw materials, vol II New Delhi: Council of Scientific and Industrial Research: 1950; p.163-173

2. Wallis TE. Text book of Pharmacognosy. 5<sup>th</sup> ed. Delhi: CBS Publishers & Distributors; 1985; p. 97-98.
3. The pharmacopoeia of India. 2<sup>nd</sup> ed. Delhi: Government of India, Ministry of Health; 1966; p.187.
4. Evans WC. Trease and Evans' Pharmacognosy. 14<sup>th</sup> ed. London, UK: WB Saunders Company Ltd; 1997 p.938
5. C.P. Khare, "Indian medicinal plants An Illustrated dictionary" Springer Reference.

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***Upcoming Newsletters***

*Knowledge of Herbs- **Cinnamomum verum.***

*For Sept, 2013.*