

NEWSLETTER

Knowledge of herbs –*Arnebia euchroma*

Arnebia euchroma, commonly known as 'Ratanjot' of Boraginaceae family grows in wild at an altitude of 4000 to 4200 m a.m.s.l. in the Himalayan region. Its roots are a good source of red naphthoquinone pigments. These metabolites have commercial importance as natural colorants in food, cosmetics, and textiles and exhibit various medicinal and pharmaceutical properties.

Taxonomy Hierarchy

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Lamiales

Family : Boraginaceae

Subfamily: Boraginoideae

Genus: *Arnebia*

Species: *Arnebia euchroma*



Other common names

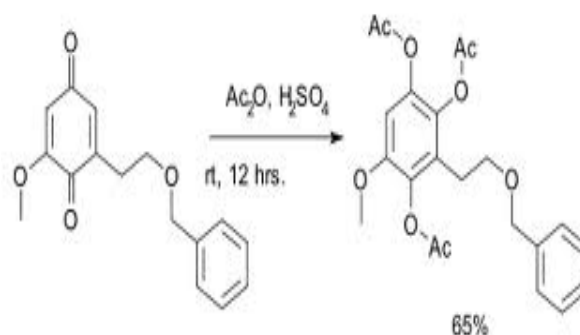
Afghan: yarlang, chin.: pinyin, zicao, Japan: nanshikon, ladh.: aam, trade: Ratanjot, unani: shanjar, Johar Valley: Baljiri

Description

Perennial growing to 0.3m it is hardy to zone 0. It is in flower from June to August, and the seeds ripen from July to September. The flowers are hermaphrodite (have both male and female organs) and are pollinated by Insects. The plant prefers light (sandy) soils, requires well-drained soil and can grow in nutritionally poor soil. The plant prefers acid, neutral and basic (alkaline) soils. It cannot grow in the shade. It requires dry or moist soil.

Biologically active constituents

Two quinonic compounds, arnebinone and arnebifuranone, were isolated from the roots of *Arnebia euchroma* and their structures were elucidated on the basis of spectral evidence. Arnebinone is a monoterpenyl-benzoquinone in which the monoterpene moiety forms a fused ring to the benzoquinone. Arnebifuranone is another monoterpenylbenzoquinone with a furan ring containing side chain which is bonded to the benzoquinone at the head carbon of C10 moiety originating from the geranyl moiety of geranyhydroquinone.



Useful Properties

The root is antipyretic, cancer; contraceptive, emollient and vulnerary. It is used in the treatment of measles, mild constipation, burns, frostbite, eczema, dermatitis etc. Experimentally it has shown contraceptive action on rats, inhibiting oestrus, the fertility rate and the release of pituitary gonadotrophin hormone and chorion gonadotrophin hormone. It inhibits the growth of cancer cells on the chorion membrane. The root contains shikonin, an antitumour and bactericidal compound. It inhibits the growth of *E. coli*, *Bacillus typhi*, *B. dysenteriae*, *Pseudomonas* and *Staphylococcus aureus*. Shikonin also promotes the healing of wounds on topical application. The root contains a copious purple dye.

Pharmacological activities

Crude alcoholic extract, shikonin and its derivatives showed antitumor activity and anti HIV activity. Arnebin -1 showed antibacterial activity. Acetyl-shikonin and arnebinol derivatives showed prostaglandin synthesis inhibitory effect and anti-inflammatory activity. Anti complement activity and enhancement of immune-complex binding were observed in different polysaccharide fractions of root.

Adulterants/substitutes

A. euchroma var. *euchroma* is adulterated/substituted with *A. benthamii* (Wall. ex G. Don) Johnston, *Maharanga emodi* (Wall.) DC. and *Onosma hispidum* Wall. ex D. Don. *A. euchroma* var. *euchroma* can be identified by the presence of suberized and crushed parenchymatous cells of cortex, phloem and xylem, which readily exfoliate in the form of papery leaves.

Dosage and safety aspects

There are no edible uses listed for *Arnebia euchroma*.

References

Duke. J. A. and Ayensu. E. S. Medicinal Plants of China Reference Publications, Inc. ISBN 0-917256-20-4 (1985-00-00)

F. Chittendon. RHS Dictionary of Plants plus Supplement. 1956 Oxford University Press (1951-00-00)

Huang H, Liu ZC: Anticancer effect of shikonin and derivatives. Zhongliu Fangzhi Zazhi 2005, 12:75–78

Huxley. A. The New RHS Dictionary of Gardening. 1992. MacMillan Press ISBN 0-333-47494-5 (1992-00-00)

Polunin. O. and Stainton. A. Flowers of the Himalayas. Oxford University Press (1984-00-00)

Rice. G. (Editor) Growing from Seed. Volume 2. Thompson and Morgan. (1988-00-00)

Your Thoughts?

Do you have a suggestion or comment on our newsletters?

We at THS are always interested in hearing from you.

Send us your thoughts at newsletters@thscenter.com

Upcoming Newsletters

**Knowledge of Herbs- *Artemisia annua* Linn.
for January, 2013.**