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REVIEW ON AEGLE MARMELOS (L.) CORREA – A PIVOTAL ANCIENT DRUG

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ABSTRACT

Since ages, plants have remained important sources of medicines in our country, which is evidenced through their uses in traditional system of medicine i.e. Ayurveda, Siddha, Unani, Homeopathy and traditional Chinese medicine. The earliest documentation about the usage of plant remedies comes from India as evident from Rigveda (4500-1600 B.C.) where Aushadhi Sukta includes a good number of plants for various ailments. Realizing the importance of medicinal plants as a natural source of newer medicines, now the world is moving towards the plant based medicine or phytomedicines that repair and strengthens bodily systems and help to destroy offending pathogens without toxic side effects. Owing to various side effects of allopathic/synthetic medicine, plant based medicines are gaining popularity in world market as a whole. In Hinduism it is considered to be very sacred. It is utilized commonly for its medicinal values. This plant have been There is a thorough description of Bilva in Vedas, Samhitas, Nighantus and other classical literature of Ayurveda and religious scriptures.

KEYWORDS: Phytomedicines, Bilva, Ayurveda.

INTRODUCTION

Aegle marmelos(L.) is commonly known as beal. It is a species of tree native to the Indian subcontinent and southeast asia. In Hinduism it is considered to be very sacred. It is utilized commonly for its medicinal values. This plant have been There is a thorough description of Bilva in Vedas, Samhitas, Nighantus and other classical literature of Ayurveda and religious scriptures. The plant is of medicinal as well as religious importance. In Hindu religion, the plant is considered very sacred and the leaves of this plant is being offered to Lord Shiva during worship. It believes that mighty is king, who is strong and thorny like the Bilva tree and peace – showering at the same time.[1]

Table 1: Scientific classification

Kingdom	**Plantae**
Order	Sapindales
Family	Rutaceae
Sub family	Aurantioideae
Genus	Aegle
Species	A.marmelos

Botanical name:- *Aegle marmelos* (L.) correa
Synonyms:[2] *Belos maemelos* (L.) A.Lynos *Crateva maemelos*(L.)

Vernacular names of Aegle marmelos[3]

Assamese:	Bael, Vael
Bengali:	Bela, Bilva
English:	Bengal Quince, Bael
Gujrati :	Bill, Bilum
Hindi:	Bela, Sriphal, Bel
Kannada:	Bilva
Malayalam:	Koovalam
Marathi:	Bel, Baela
Oriya:	Bela
Punjabi:	Bil
Tamil:	Vilvam
Telugu:	Maredu
Urdu:	Belgiri, (Bael)

Notable Synonyms In Ayurveda[4]

बिल्वः शाण्डिल्यशैलूषौ मालूरश्रीफलावपि |…..
श्रीफलस्तुवरस्तिक्तो ग्राही रूक्षो अग्निपित्तकृत ||
वातश्लेष्महरो बल्यो लघुरुष्णश्च पाचनः || (भा.प्र)

Bilva:- Which pacify Vata and kapha
Shandilya:- It decreses sexualy desire
Shriphala:- Fruit is considered auspicious
Shailusha:-Growen even in hilly areas
Malur:- Useful in bowel aliments
Tripatra:- Having three leaves
Mahakapitta:- Resembles large kapittha fruit

Table 2: Classical categorization.[5]

S.no.	Classical	Categorization
1	Charak	Sothahara,Arshoghna,Asthapanopag
2	Sushrut	Brahatpanchmoola
3	Bhavprakash	Guduchyadi varga, Varunadi varga
4	Kaydev N.	Aushadi
5	Raj N.	Amradi varga
6	Dhanwantar N	Guduchyadi varga

Table 3: Pharmacodynamics (Rasa panchaka).[6]

Rasa	Madhura, Tikta, Kasaya
Guna	Laghu, Ruksa, Tiksna
Virya	Usna
Vipak	Katu
Dosh karma	Kaphahara, Pittahara,Vatahara

Botanical description

Macroscopic:- Bark occurs as pieces of about 0.5 to 1 cm thick, flate or channelled; Surface rough and worty due to a number of lenticels cells, ridges and furrows; fracture tough, gritty in outer and fibrous in inner region; odour and taste, not characteristic.

Microscopic:- Cork stratified tangentially elongated, liginified, with four to eight bonds alternating with smaller cells of 2 to 16 layers and larger cells of 2 to 20 layers ; secondary cortex wide, consisting of parenchyma , and a large number of groups of , or sometime single, thick walled, lignified, stone cells showing transverse striations due to radiating canals; smaller ones 16 to 64 µ wide and 48 to 160 µ long and longer ones 32 to110 µ wide and 160 to 640 µ long; secondary phloem consisting of fibers, sieve elements and crystal fiber, traversed by phloem rays, phloem fibers long, tapering, sharply pointed by blunt; fibers groups arranged in rings; phloem rays uni to tri seriate, bi seriate rays being more common, uni seriate rays 3 to 6 cells high, while bi seriate rays 6 to 25 cells high.

T.L.C:- T.L.C. of alcoholic; extract on silica gel 'G' plate using toluene; ethyl acetate(95:5) shows under UV (366mm) five fluorescent spots al Rf. 0.07(greenish blue), 0.14(greenish blue), 0.25,0.39 and 0.67(all blue). On exposure to iodine vapour three spots appear at Rf.0.14, 0.25 and 0.97(all yellow). On spraying with Drangendorff reagent one spot appears at Rf.0.25 (orange).

Identity, Purity and strength:-

Foreign matter Not more than 1% w/w
Total Ash Not more than 10 % w/w
Acid-insoluble ash Not more than 1% w/w
Alcohol- soluble extractive- Not more than 40% w/w
Water-soluble extractive- Not more than 9% w/w

Chemical constituent[7,8]

As per researches, there are many chemical constituents which are investigated through the extracts of different parts in different medium. Some are minor and some are major. These can be listed as:

Major: γ – Fagarine, marmesin, mermesinine, marmin, umbelliferone.

Minor: Aeglin, Aeglinol, Aurapten, Lupeol, Chloromarmin.

Leaf: Skimmianine, Aegeline, Lupeol, Cineol, Citral, Citronella, Cuminaldehyde, Eugenol, Marmesinine;

Bark: Skimmianine, Fagarine, Marmin; in fruit Marmelosin, Luvangetin, Aurapten, Psoralen, Marmelide, Tannin.

Action and properties

Doshkarma:- Kaphahara, Pittahara, Vatahara, Dipaniya, Sangrani, Visaghna

Malakarma:- Grahi, Mautrasangrahaniy(unriped), Mild purgation(riped)

Dhatukarma:- Blood erection

Formulation:- Dashmularishta, Bilva oil, Bilva powder, Chyenprash

Dose:- 15-30 ml

Parts used: Fruit Pulp, Root, Leaves.

Cultivation

1. **Soil and climate**:- Loam soil, sunny situation, warm humid climate.
2. **Nursery raising and planting**:- Beal is generally propagated by seeds. Sowing is done in june or july. The growing seedling is very slow.
3. **Manures, fertilizers and pesticides:-** The medicinal plants have to be grown without chemical fertilizers and use of pesticides. Organic manures like, farm yard manure(FYM), vermin compost, green manure etc.
4. **Irrigation:-** The field after plantation should be irrigated periodically as and when required weekly or fortnightly.

- **Pharmacological activity[9]**

a. Immunomodulatory action of aegle marmelous:- The present research work investigates immunomodulatory action Aegle marmelos in *Catla catla* Hamilton cyperinidae for enhancing immune protection of the face against bacterial infection.

b. Effect of marmin, a compound isolated from Aegle marmelos on contraction of the guinea-pig isolated trachea:- The present research work have shown marmin or 7-(6',7'-dihydroxygeranyl-oxy) coumarin is a compound isolated from Aegle marmelos. In th study we examined the effects of

marmin on the contraction guinea- pig isolated trachea stimulated by several inducer namely histamine metacholine, compound 48/80. We also evaluated its action against contraction induced by extracellular or intra cellular calcium ion.

c. **Inhibition of radiation induced clastiognicity by Aegle marmelos in mice bone marrow exposed to different dose of gamma radiation:-** It show the frequency of micro nucleated polychromatic erythrocyte(MPCE) normochromatic erythrocytes (MNCE) and poly chromatic / normochromatic ratio (PCEM/NCE), was studied in bone marrow of mice, orally administered.
d. **Antidiabetic activity of Aegle marmelos and its relationship with its antioxidant properties:-** The present study examined tha action Aegle marmelos against experimental diabetes as well as the anti oxidant potential of the drug.
e. **Study on the antidirrhoeal activity of Aegle marmelos unripe fruit validity its traditional usage:-** However, despite its traditional usage as an anti dirrhoeal there is limited information regarding its mode of action in infections forms of diarrhea. Hence, we evaluated the hot aqueous extract of dried unripe fruit pulp of Aegle marmelos for its antimicrobial activity and effect on various aspects of pathogenecity of infectious diarrhea.
f. **Toxicity studies:** dried fruit pulp of a aegle marmelos was screened for it topological profile. Ethanolic extract of A.marmelos dried fruit pulp was screened for acute oral toxicity test in Swiss albino mice 550 & 1250 mg/kl body weight at these conc. Test extract did showed any sign of toxicity. No change in the behavior and physiological activity was recorded in mice during the experiment (14 days). The results concluded that LD50 of the test extract is more than 1250 mg/kg body weight.[10]

CONCLUSION

The plant and its different parts are used in the form of different formulations like Kwatha (decoction), Kalka (paste), Churna (powder), Peya, Yavagu, Leha, Ghrita, Basti etc.as mentioned in Brihattryi. It is used to cure many diseases likes Atisara (diarrhoea), Pravahika (dysentery), Shoth (generalised or localised swelling), Gulma (localised gas), Arsha (haemorrhoids), Grahani (irritable bowel syndrome), Pandu (anaemia), Shvasa (respiratory disorders), Hikka (hiccough), Kasa (cough), Parshvashula (pain in chest bilaterally), Hritshula (cardiac problems), Udararoga (disorders of g. i. tract), Halimaka (a type of jaundice), Vataroga (nervine disorder) etc. which are proved by animal experimental studies done by different scholars mentioned in the article. Approximate all the medicinal uses are proven by the animal experimentation and evidences. The therapeutic use of plant shows significant effect on multiorgan system without any adverse effects. Thus, the plant and its various formulations can be used to cure the mentioned diseases, without any hazardous effect on health. However, there is need of future researches for tremendous work of herbal drugs to make their use efficient and effective

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