A Review Literature On Medicinal Plant Of Aegle Marmelos (Bael)

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ABSTRACT
This review aim to provide basic knowledge regarding the medicinal plant of bael (AEGLE MARMELOS). The ripened bael fruits are popular among people because of the tasty fruit pulp, which is great for producing jam, syrup and pudding. Bael has several therapeutic properties and is thus employed in ayurveda herbal medicine preparations.) ie. fruits, bark, leaves, seeds, and roots of

Bioactive chemicals found in bael include coumarin, xanthotoxol, imperatorin, aegeline, and marmeline.) These substances have antidiabetic, anticancer, antifertility, antibacterial, immunogenic, antioxidiant, antidiarrheal, wound healing, analgesic, insecticidal activity are a pharmacological properties. Bael plant is a traditional medicinal plant to use various diseases. Aegle marmelos has undergone extensive research on various components, leading to the isolation of many types of compounds, including alkaloids, coumarins, terpenoids, fatty acids, amino acid, tannis, flavonoid, saponins.

This study summarizes information regarding the A. marmelos (Bael) phytochemicals, pharmacological study, synonyms, traditional use.

KEY WORLD
Aegle marmelos (Bael) phytochemical, pharmacological properties. Nutritional component, historical use and marketed product

INTRODUCTION
India widely called as a botanical garden of the largest producer of medicinal plant. Plant as use in medicine rich source pharmacological activity for treatment of various diseases.
Natural medicinal plant are pollution free, no side effect, no toxic effect. Herbal medicine are use well liked developing countries. Bael is economical herbal compound. Bael is a one of medicinal tree in thousand of medicinal plant. Bael (A. marmelos) tree are a usually near by temple of lord shiva, Bael is also a sacred
tree to Lord Shiva. The bael fruit is recognized ‘RAMAYAN’ period. Bael tree in mention in book of ‘CHARKA SAMHITA’

Beal is a ayurvedic medicinal plant, It is aromatic and all parts of tree are medicinal important like fruit, leaves, bark, root, and seed’s use in ayurvedic for treting various diseases. Bael fruit have high nutritional component as like mineral: (phoshorous, photassium, calcium, magnesium, iron, copper, zinc), protein, carbohydrate, vitamins(B1,B2,B3,C), fatty acid.

Phytochemical in bael fruit contents coumarins, tannin alkaloids, flavonoids, carotens Bael fruit and leaves are use to treat dysentery diarrhea, dyspepsia, edema, vomiting etc. It is important in food processing.

In a bael trees included antioxidant, Phytochemical and nutritional composition are a making quality of food. Various study have shown many pharmacological activity includes antidiarrheal, antioxidant, antidiabetic, hepatoprotective, radio protective, anticancer, and antiulcer activities in pharma products.

**PLANT PROFILE**

Kingdom : Plantae Subkingdom : Tracheobionta Super division :
Spermatophyta
Division : Magnoliophyta
Class : Magnoliopsida
Subclass : Rosidae
Order : Sapindales
Family : Rutaceae
Genus : Aegle
Species : Aegle marmalos

![Fig:all parts of bael plant](image-url)
DATA AVAILABLE

In the data collection use of literature review by finding primary data or source and official book and international journals also. In this making review article the using online media with keywords such as Aegle marmelos (Bael) phytochemical, pharmacological properties, traditional use, marketed use. The primary reference use in this article are searched through websites such as Researchgate, Google Scholar, Pubmed Central, Scopus, Vikaspedia, Wikipedia and other Publish Journals.

SYNONYMS (BAEL)

- English : Bengal quince, Beal fruit, Golden apple, Stone apple.
- Tamil : Aluvigam, Iyabudi, Kuvilam, Mavilangai, Vilwam, Villuvam.
- Telugu : Bilvamu, Maluramu, Maredu, Sailushamu, Sandilyamu, Sriphalamu.
- HindiN : Bel, Bili, Sirphal, and Bela,
- Sanskrit : Adhararutha, Asholam, Atimangaliya, Bilva.
- Bengal : Bael, Bel,
- Gujarat : Billi,
Bael (A. marmelos) in many phytochemical compound contents carotenoids, alkaloids, pectin, flavonoids, tannin, coumarins, terpenoid. This phytochemical attention to pharmacological activity such as anticancer, antioxidant, antidiabetic, antimicrobial, hepatoprotective activity.

1. Bael fruit is a rich source of coumarin. In a previous year reported in a bael fruit content marmalosin, marmesin, alloimperatorin, imperatorin, marmin, xanthotoxol etc. This is medicinally important component of bael fruit.

2. Carotenoids – carotenoids present in yellow colour of a bael (A. marmelos) fruit. Bael in identify α-carenoid, β-carenoid, γ-carenoid, δ-carenoid etc.

3. Alkaloids- Bael fruit investigated to find alkaloids compounds such as Aegelenine, Aegeline, Ethyl Cinnamate, Ethyl cinnamamide, Fragrine and Dictamine etc.

4. Terpenoids- in a terpenoid find a caryophyllene, valencene, cineol, terpinolene, cislinalooloxide, elemol, linalool, limonene etc.

5. Tannin- In a bael fruit find the Skimmianine.
## NUTRITIONAL COMPONENT

<table>
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<tr>
<th>Ingredients</th>
<th>Amounts</th>
</tr>
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<tbody>
<tr>
<td>Water</td>
<td>55-61.5 gms</td>
</tr>
<tr>
<td>Protein</td>
<td>1.8-2.62 gms</td>
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<tr>
<td>Energy</td>
<td>137 calories</td>
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<tr>
<td>Fiber</td>
<td>2.9 gms</td>
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<tr>
<td>Fat</td>
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<tr>
<td>Carbohydrates</td>
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<tr>
<td>Minerals</td>
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<tr>
<td>Thiamine</td>
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<tr>
<td>Carotene</td>
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</tr>
<tr>
<td>Niacin</td>
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<tr>
<td>Riboflavin</td>
<td>1.19 mg</td>
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<tr>
<td>VitaminC</td>
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<tr>
<td>Tartaric acid</td>
<td>2.11 mg</td>
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<tr>
<td>Calcium</td>
<td>85 mg</td>
</tr>
<tr>
<td>Potassium</td>
<td>600 mg</td>
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<tr>
<td>Phosphorus</td>
<td>50 mg</td>
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</tbody>
</table>
HISTORICAL USE OF BAEL

Leaf - It is use in sore, stomach problem, wounds healing, stomach ulcer, cholera, bronchitis, beriberi.

Fruit - It is use in astringgent, gastric issues, diarrhea, stomachic, antiviral, gonorrhea, epilepsy, ulcer, anti diabetic, anti cancer, antioxidant, anti microbial.

Root - It is use in Gastrointestinal problem, heart sicknesses, fever, hypoglycaemic, stiffness.

Bark - Heart use in stomacha problem, fever and heart problem.

Seed - It is use in anti pyretic.

Flower - It is use in expectorant epilepsy
PHARMACOLOGICAL ACTIVITY
A. marmelos is a medicinal plant follow the rutaceae family. This plant found be to be variety of therapeutic activity shown in fig.

- Wound Healing Activity
- Ulcer healing potential
- Antipyretic potential
- Antidiarrhoeal activity
- Diuretic activity
- Immunomodulatory activity
- Antithyroid activity
- Antimicrobial activity
- Antifungal activity
- Antioxidant activity
- Radioprotective effect
- Antiarthritis activity
- Contractile activity
- Analgesic activity
MARKETED PRODUCT’S

1. Food- Using a bael fruit made a jam, beverages, toffee, Tamarind, sauce, muramba, syrup (sarbat).

2. Fodder- Leaves and twigs use for fodder.

3. Timber- It is use for cards and construction. it is a base utilize for small scale turnery, tools, knife handles, pestles and combs etc.

4. Gum and resins- It is commonly use as glue using a bael fruit or seed mix with lime plaster for water proofing walls and added cement making a buildings wall.

5. Tannin or Dyestuff- Tannin present in fruit and leaves to yield and yellow dye for calico and silk fibric.

6. Essential oil- The leaves use as a essential oil for a hair oil.

7. Poison – The leaves are cause the abortion and sterility in women. The bark is use as the fish poison in the celebes, Leaf extract of bael important pest of rice plant in asia.

8. Medicine – Using a unripe bael fruit with funnel and ginger in a hemorrhoids, it is maintaining of a normal skin colour. It is use in treatment of leukoderma. Mermelosin found in bael fruit for using laxative and diuretic. bael fruit use in most of diarrhea addysentery prevalent in india for a summer month

9. Other Product - The bael fruit is use for a detergent action for washing the cloths. Flower is use as the perfume.

CONCLUSION

It is strongly believed information present in this review on the phyatochemicals and pharmacological properties to provide evidence for the use of plant in a different medicins. Medicinal plant of A. marmelos have been carried out many parts of A. marmelos. The literature review support the potential value of A. marmelos medicinal plant in this review contains many phytochecicals are present to use for therapeutic benefits.

This medicinal plant can be used to treat many diseases in humans, such as diabetes, liver toxicity, fungal infections, microbial infections, immunomodulators, antiproliferative, wound healing, and antifungal analgesic, anti-inflammatory, antipyretic, hypoglycaemic, antidyslipidemic. Further Research carried out investigate potential value and marketed product their therapeutic benefits.
REFERENCES


