



AEGLE MARMELLOS (BAEL)- A TREE WITH IMMENSE MEDICINAL VALUE

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ABSTRACT: *Aegle marmelos* is an important fruit yielding as well as medicinal indigenous tree species. The fruits, bark, leaves, seeds, and roots of bael contain bioactive compounds such as coumarin, xanthotoxol, imperatorin, aegeline, and marmelosin. These compounds exhibit antidiabetic, anticancerous, antifertility, antimicrobial, immunogenic, and insecticidal activities. In bael, huge variability has been observed and promising genotypes on the basis of its fruits characters have been identified. The pulp from bael fruits is used to make delicious foods like murabba, puddings, and juice. Bael tree is also a suitable species for reforestation, especially in unfertile marginal lands. Various phytochemical and pharmacological evaluations have been reported in this literature revealing the great value of the *Aegle marmelos*.

Keywords: *Aegle marmelos*, coumarin, genotype, immunogenic, reforestation

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INTRODUCTION

Aegle marmelos (Linn.) Correa (2n=18), commonly known as Bael in hindi, is a highly medicinal plant belonging to the genus *Aegle* and the family Rutaceae, the family of citrus fruits. It is mostly found in tropical and subtropical regions (Kala, 2006). It is also known as Bengal quince, bilva, Indian quince, golden apple, holy fruit, sriphal, stone apple, and maredo in India. It was introduced to Europe from India in 1759 (Singh *et al.*, 2019). It is a sacred tree in Hinduism, and is offered in prayers of Hindu deities Lord Shiva and Parvati and thus, the tree is known by the name 'Shivaduma' (The Tree of Shiva). Flowering occurs in April and May soon after the new leaves appear and the fruit ripens in 10 to 11 months reaching maturity in December.

DISTRIBUTION AND HABITAT

It is widely distributed in South and Southeast Asia including India, China, Nepal, Myanmar, Pakistan, Bangladesh, Nepal, Vietnam, Cambodia, Thailand, Indonesia, Malaysia, Tibet and Sri Lanka (Saroj *et al.*, 2006). It is a subtropical plant and grows up to an altitude of 1200 msl with a mean annual rainfall of 570-2,000 mm. In India, the bael tree is commonly found in

the Indo-Gangetic Plains, Sub-Himalayan tracts, Northeastern region, and in dry and deciduous forests of the central and southern Peninsula (Singh *et al.*, 2011). It copes with a wide range of soil conditions (pH range 5- 10), is tolerant of waterlogging, and has an unusually wide temperature tolerance from -7 to 48 C°. It requires a pronounced dry season to give fruit.

MORPHOLOGY

A. marmelos is a moderately big, slender, aromatic tree with a somewhat fluted bole of 3.0-4.5 meters (Meena *et al.*, 2021). It has sweet-scented, greenish-white bisexual flowers that are 2 cm in diameter and develop in clusters at the end of twigs or leaf axils. They usually appear with young leaves. The calyx is flat with small teeth. The four or five petals of 6–8 millimeters overlap in the bud. Many stamens have short filaments and pale brown, short-style anthers (Hanumant *et al.*, 2020). The ovary is bright green with an inconspicuous disc. The terminal leaflet is 5.7 cm long, 2.8 cm wide, and has a long petiole; the two lateral leaflets are virtually sessile, 4.1 cm long, 2.2 cm wide, ovate to lanceolate, and have reticulate pinnate venation; the petiole is 3.2 cm long. The fruit is round or oval shaped and is 5–20 cm in