

A REVIEW ON *AEGLE MARMELOS*: A POTENTIAL MEDICINAL TREE

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ABSTRACT

Since time immemorial, plants and their products have been the primary resource of food and medicines for mankind. *Aegle marmelos* commonly known as bael (or bel), belonging to the family Rutaceae, is a moderate sized, slender and aromatic tree. A number of chemical constituents and various therapeutic effects of leaves of *Aegle marmelos* have been reported by different workers. Extensive investigations have been carried out on different parts of *Aegle marmelos* and as a consequence, varied classes of compound viz., alkaloids, coumarins, terpenoids, fatty acids and amino acids have been isolated from its different parts. Various phytochemical, ethnobotanical and pharmacological evaluations have been reported in this literature for the important potential of the *Aegle marmelos*.

Keywords: *Aegle marmelos*, Bael, Phytochemical, Ethnobotanical, Pharmacological.

INTRODUCTION

Aegle marmelos belonging to family Rutaceae, is commonly known as Bael in indigenous systems of medicine and has been regarded to possess various medicinal properties. The bael is one of the sacred trees of the Hindus. Leaves are offered in prayers to Shiva and Parvathi since ancient times¹. Bael is a deciduous sacred tree, associated with Gods having useful medicinal properties, especially as a cooling agent. This tree is popular in Shiva and Vishnu temples and it can be grown in every house. Its leaves are trifoliate symbolizing the Thrimurthies-Brahma, Vishnu, Shiva, with spear shaped leaflets resembling Thrisoolam the weapon of Lord Shiva. Many legends, stories and myths are associated with this tree. The leaflets are given to devotees as prasadam in Shiva temples and as Tulasi in Vishnu temples. In India flowering occurs in April and May soon after the new leaves appear and the fruit ripens in 10 to 11 months from bloom March to June of the following year^{2,42}.



Figure: *Aegle marmelos* Leaves

PLANT PROFILE**Scientific Classification³**

- Kingdom- Plantae.
- Order- Sapindales.
- Family- Rutaceae.
- Subfamily- Aurantioideae.
- Genus- Aegle.
- Species- *Aegle Marmelos*.
- Botanical name- *Aegle marmelos*.

Vernacular names⁴

- English: Bengal quince, Beal fruit, Golden apple, Indian quince, Stone apple.
- Tamil: Aluvigam, Iyalbudi, Kuvilam, Mavilangai, Vilwam, Villuvam.
- Telugu: Bilvamu, Maluramu, Maredu, Sailushamu, Sandiliyamu, Sripalamu.
- Hindi: Bel, Bili, Sirphal, and Bela,
- Sanskrit: Adhararutha, Asholam, Atimangaliya, Bilva.
- Bengal: Bael, Bel,
- Gujarat: Billi,
- Kannada: Bela, Bilva
- Malayalam: Koovalam, Vilwam.
- Orissa : Belo.

Botanical Description: *Aegle marmelos* is a slow-growing, medium sized tree, up to 12-15 m tall with short trunk, thick, soft, flaking bark, and spreading, sometimes spiny branches, the lower ones drooping. Young suckers bear many stiff, straight spines. The deciduous, alternate leaves, borne singly or in group, are composed of 3 to 5 oval, pointed and



Figure: *Aegle marmelos* flowers



Figure: *Aegle marmelos* fruits

shallowly toothed leaflets, 4-10 cm long, 2-5cm wide, the terminal one with a long petiole⁵.

Soil type: Bael is said to do best on rich, well-drained soil, but it has grown well and fruited on the oolitic limestone of southern Florida. It also grows well in swampy, alkaline or stony soils having pH range from 5 to 8. In India it has the reputation of thriving where other fruit trees cannot survive⁶.

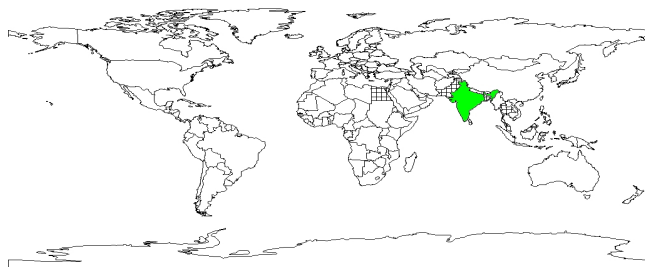
Tree management: The tree has no exacting cultural requirements, doing well with a minimum of fertilizer and irrigation. The spacing in orchards 6-9 m between trees. Seedlings begin to bear in 6 to 7 years, vegetatively propagated trees in 5 years. Full production is reached in 15 years. Normally, the fruit is harvested when yellowish-green and kept for 8 days while it loses its green tint. Then the stem readily separates from the fruit. A tree may yield as many as 800 fruits in a season⁶.

ORIGIN AND DISTRIBUTION: The bael tree has its origin from Eastern Ghats and Central India. It is native to India and is found growing wild in Sub-Himalayan tracts from Jhelum eastwards to West Bengal, in central and south India. Bael is found growing along foothills of Himalayas, Bihar, Chhattisgarh, Uttaranchal, Jharkhand and Madhya Pradesh. It is also grown in some Egyptian gardens in Surinam and Trinidad⁷.

Documented species distribution^{8,2}

Native range : India

Exotic range : Bangladesh, Egypt, Malaysia, Myanmar, Pakistan, Sri Lanka, Thailand.



CHEMICAL CONSTITUENTS

Alkaloids: The alkaloids comprise the largest single class of secondary plant substances. New alkaloids from the leaves of *Aegle marmelos* were reported viz., ethyl cinnamamide, O-3,3-(di methylallyl) halfordinol, N-2-methoxy-2-[4-(3',3'-dimethylallyloxy) phenyl] ethyl cinnamamide etc^{9,40}.

Terpenoids: The essential oil of *Aegle marmelos* (L.) Correa leaves were studied very much extensively in India by various workers since 1950. α -Phellandrene was found to be the common constituent of the essential oil from leaves, twigs and fruits. α -Phellandrene (56%) and p-cymene (17%) were reported from leaf oil. Later, similar report was published on leaf essential oil by many workers. P-Menth-1-en-3,5-diol was isolated and characterized from *Aegle marmelos* leaves. Limonene (82.4%) was reported as the main constituent from *Aegle marmelos* leaves and it was shown that limonene is characteristic marker for identification of *Aegle marmelos* oil samples^{9,30}.

Coumarins: Marmelosin, marmesin, imperatorin, marmin, alloimperatorin, methyl ether, xanthotoxol, scopoletin, scoparone, umbelliferone, psoralen and marmelide has also been reported¹⁰.

Phenylpropanoids: These are naturally occurring phenolic compounds, which have an aromatic ring to which three-carbon side chain is attached. Among the phenylpropanoids are included hydroxycoumarins, phenylpropenes and lignans. The most widespread plant coumarin is the parent compound, coumarin itself, which occurs in over twenty-seven plant families. Marmesin was established as a new compound from leaves, which is also a constituent of heartwood and root¹¹.

Tannins: The maximum tannin content in bael fruit was recorded in the month of January. There is as much as 9% tannin in the pulp of wild fruits, less in cultivated type. Tannin is also present in leaves as skimmianine, it is also named as 4, 7, 8 - trimethoxyfuro- quinoline¹².

Polysaccharides: Galactose, arabinose, uronic acid and L-rhamanose are obtained on hydrolysis^{12,32}.

Flavonoids: Mainly includes Rutin, Flavone, flavan-3-ols, flavone glycosides¹³.

TRADITIONAL USES

All parts of *Aegle marmelos* are medicinally useful like leaves, fruit pulp, flower, stem bark, root bark etc.

Leaves: Leaves are used as mild laxative, or the inflammation of the mucous membrane having a free discharge and for asthma. The decoction of the leaves is febrifuge, or helps in eliminating fever and is an expectorant, or promotes the removal of mucous secretion from the bronchial tubes. The leaf juice is given in dropsy or the abnormal accumulation of liquid in the cellular tissue accompanied with constipation and jaundice. A hot poultice of the leaves is applied in ophthalmia or severe inflammation of conjunctiva with acute bronchitis and inflammation of the other body parts¹¹.

Root: The decoction of the root and sometimes the stem bark is useful in intermittent fever, also in hypochondriasis and palpitation of the heart. The decoction of root is given with sugar and fried rice for checking diarrhoea and gastric irritability in children²¹. Root is a one of the ingredients of Dasamoola a standard Ayurvedic remedy for loss of appetite and puerperal diseases e.g. Inflammation of uterus⁸.

Flower: Distillation of flowers yielded a drug used as tonic for stomach and intestine, anti-dysenteric, antidiabetic, diaphoretic and as local anaesthetic. It is also used in epilepsy and as expectorant¹⁴.

Fruit: Fruit is eaten during convalescence after diarrhea. It is valid for its mild astringency and as remedy for dysentery. The traditional healers of southern Chhattisgarh use dry powder of fruit with mustard oil for the treatment of burn cases. One part of powder and two part of mustard oil are mixed and are applied externally. Fruits are also used in gastric troubles, constipation, laxative, tonic, digestive, stomachic, brain and heart tonic, ulcer, antiviral, intestinal parasites, gonorrhoea, epilepsy^{5,41}.

Ripe fruit: The ripe fruit promotes digestion and is helpful in treating inflammation of rectum. The ripe fruit extract showed antiviral activity against ranikhet disease virus. Pulp of ripe fruit is sweet, cooling, aromatic and nutritive when taken fresh. Fruit pulp marmalade is used as prevention during cholera epidemics, also given to prevent the growth of piles, useful in patients suffering from chronic dysenteric condition characterised by alternate diarrhea and constipation relieves flatulent colic from a condition of chronic gastrointestinal eataarrh. Fresh juice is bitter and pungent fruit extract lower the blood sugar^{14,5}.

Unripe fruit: Fine powder of unripe fruit showed significant effect on intestinal parasites and also effective against *Entamoeba histolytica* and *Ascaris lumbricoides*. Unripe fruit is used as an astringent in dysentery, stomachache in

diarrhea, tonic, digestive, demulcent, described as cardiacal, restorative, given in piles, Decoction of unripe fruit is astringent, useful in diarrhea and chronic dysentery^{8,41}.

MARKETED PRODUCTS^{2,41}

Food: *Aegle marmelos* fruits may be cut in half, or the soft types broken open, and the pulp, dressed with palm sugar, eaten for breakfast, as is a common practice in Indonesia. The pulp is often processed as nectar. Beating the seeded pulp together with milk and sugar makes a popular drink called sherbet in India. A beverage is also made by combining bael fruit pulp with that of tamarind.

Mature but still unripe fruits are made into jam, with the addition of citric acid. Confection, bael fruit toffee, is prepared by combining the pulp with sugar, glucose, skim milk powder and hydrogenated fat. Indian food technologists view the prospects for expanded bael fruit processing as highly promising.

The young leaves and shoots are eaten as a vegetable in Thailand and used to season food in Indonesia. They are said to reduce the appetite. An infusion of the flowers is a cooling drink.

Fodder: The leaves and twigs are lopped for fodder.

Timber: The wood is strongly aromatic when freshly cut. It is gray-white, hard, but not durable; has been used for carts and construction, though it is inclined to warp and crack during curing. It is best utilized for carving, small-scale turnery, tool and knife handles, pestles and combs, taking a fine polish.

Gum or Resins: The gum enveloping the seeds is most abundant in wild fruits and especially when they are unripe. It is commonly used as a household glue and is employed as an adhesive by jewelers. Sometimes it is resorted to as a soap-substitute. It is mixed with lime plaster for waterproofing wells and is added to cement when building walls. Artists add it to their watercolors, and it may be applied as a protective coating on paintings.

Tannin or dyestuff: There is as much as 9% tannin in the pulp of wild fruits, less in the cultivated types. The rind contains up to 20%. Tannin is also present in the leaves. The rind of the unripe fruit is employed in tanning and also yields a yellow dye for calico and silk fabrics.

Essential oil: The essential oil of the leaves contains d-limonene, 56% α -d-phellandrene, cineol, citronellal, citral, 17% pycnolone, 5% cuminaldehyde. The limonene-rich oil has been distilled from the rind for scenting hair oil.

Poison: The leaves are said to cause abortion and sterility in women. The bark is used as a fish poison in the Celebes. Tannin ingested frequently and in quantity over a long period of time is antinutrient and carcinogenic. Leaf extract from *A. marmelos* has been found to have insecticidal activity against the brown plant hopper (*Nilaparvata lugens* Stal), an important pest of rice plant in Asia.

Medicine: A decoction of the unripe fruit, with fennel and ginger, is prescribed in cases of hemorrhoids. It has been surmised that the psoralen in the pulp increases tolerance of sunlight and aids in the maintaining of normal skin color. It is employed in the treatment of leucoderma. Marmelosin derived from the pulp is given as a laxative and diuretic.

In large doses it lowers the rate of respiration, depresses heart action and causes sleepiness. For medicinal use the young fruits, while still tender, are commonly sliced horizontally and sun-dried and sold in local markets. They are much exported to Malaysia and Europe. Because of the astringency especially of the wild fruits the unripe bael is most prized as a

means of halting diarrhea and dysentery which are prevalent in India in the summer months.

Other products: The fruit pulp has detergent action and has been used for washing clothes. The shell of hard fruits has been fashioned into pill- and snuff boxes, sometimes decorated with gold and silver. A cologne is obtained by distillation from the flowers. In the Hindu culture, the leaves are indispensable offerings to the 'Lord Shiva'.

REPORTED PHARMACOLOGICAL ACTIVITIES

Antibacterial activity: Antimicrobial activity of different leaf extracts such as Petroleum ether, Dichloromethane, Chloroform, Ethanol and Aqueous extract of *Aegle marmelos* leaves were tested against selected Gram positive and Gram negative bacteria. Results depict that phytochemical extracts of *Aegle marmelos* exhibited significant anti-bacterial activity. However, the inhibitory activity was found to be both organism and solvent dependent. Ethanol and chloroform leaf extracts of *Aegle marmelos* were found to be more active towards the bacterial species tested. Further, the aqueous leaf extract was moderately active followed by dichloromethane extract. However, petroleum ether extract was not effective against any of the organisms tested. Growth of *Lactobacillus bulgaris* and *Bacillus cereus* was not inhibited by any of the tested leaf extracts of *Aegle marmelos*¹.

Antihistaminic activity: Skimmianine is a quinoline alkaloid isolated from the roots of *Aegle marmelos*. In the study the effects of skimmianine on the histamine release from rat mast cells are tested. The study was performed by using two cell lines, rat basophilic leukemia (RBL-2H3) cell line, and rat peritoneal mast cells (RPMCs) DNP24-BSA, thapsigargin, ionomycin, compound 48/80 were used as inducers for histamine release from rat mast cell. Skimmianine markedly inhibited the histamine release from RBL-2H3 cells induced by DNP24-BSA, thapsigargin and ionomycin¹⁵.

Anti-inflammatory, antipyretic and analgesic activity: The serial extracts of the leaves of *Aegle marmelos* were investigated for anti-inflammatory property. The analgesic and antipyretic properties were also evaluated. The most of the extracts derived from the plant *Aegle marmelos* caused a significant inhibition of the carrageenan induced paw oedema and cotton-pellet granuloma in rats. The extracts also produced marked analgesic activity by reduction the early and late phases of paw licking in mice. A significant reduction in hyperpyrexia in rats was also produced by the most of the extracts. This study was established anti-inflammatory, antinociceptive and antipyretic activities of the leaves of *Aegle marmelos*¹⁶.

Hepatoprotective activity: The experiments were performed with four groups of animals. The experimental animals were administered with 30% ethyl alcohol for a period of 40 days and the fine crude plant leaves powder was fed to animals for next 21 days. The observed values of TBARS (Thiobarbituric acid reactive substances) in healthy, alcohol intoxicated and herbal drug treated animals were 123.35, 235.68 and 141.85 μ g/g tissue respectively. The results were compared with the standard herbal drug silymarin (133.04 μ g/g tissue). The experimental results indicate that, the *Aegle marmelos* leaves have excellent hepatoprotective effect¹⁷.

Insecticidal activity: Experiments were carried out to determine the potential of using essential oil from leaves of *Aegle marmelos* to control insect infestation of stored gram from *Callosobruchus chinensis* (L.) (Bruchidae) and wheat from *Rhyzopertha dominica* (F.) (Bostrychidae), *Sitophilus oryzae* (L.) (Curculionidae) and *Tribolium castaneum*

(Herbst) (Tenebrionidae). After introducing the test insects, stored gram and wheat samples were fumigated with essential oil of *Aegle marmelos* at 500 µg/mL (ppm). The oil significantly enhanced feeding deterrence in insects and reduced the grain damage as well as weight loss in fumigated gram and wheat samples infested with all insects except *T. castaneum*. The essential oil at different doses significantly reduced oviposition and adult emergence of *C. chinensis* in treated cowpea seeds. The oil protected stored gram from *C. chinensis* and wheat from *R. dominica* and *S. oryzae* for two years. Limonene (88 %) was found to be the major component in the oil through GC-MS analysis. Regression analysis of data on individuals in treated cowpea confirmed that significant reduction of oviposition and adult emergence of *C. chinensis* decreased with increase in doses. The findings emphasize the efficacy of *Aegle marmelos* oil as fumigant against insect infestations of stored grains and strengthen the possibility of using it as an alternative to synthetic chemicals for preserving stored grains¹⁸.

Hypoglycemic and Antioxidant activity: The hypoglycemic and antioxidant effect of aqueous extract of *Aegle marmelos* leaves (AEAM) carried out by using male albino rats. Glucose, urea and glutathione-S-transferase (GST) in plasma, glutathione (GSH) and malondialdehyde (MDA) levels in erythrocytes were estimated in all the groups at the end of four weeks. There was a decrease in blood glucose at the end of four weeks in group treated with AEAM, however it did not reach the control levels. There was an increase in erythrocyte GSH and a decrease in MDA in group treated with AEAM as compared to diabetic rats. The plasma GST levels were raised in diabetic rats when compared to controls. In the group treated with AEAM, there was a decrease in GST as compared to diabetic rats. Owing to hypoglycemic and antioxidant properties, AEAM may be useful in the long term management of diabetes^{19,37}.

Immunomodulatory activity: The immunomodulatory action of methanolic extract of *Aegle marmelos* fruit (MEAM) in experimental model of immunity was carried out by neutrophil adhesion test and carbon clearance assay, whereas, humoral immunity was analysed by mice lethality test and indirect haemagglutination assay. MEAM dose was selected by Stair case method (up and down) and administered at 100 and 500 mg/kg orally. The *Ocimum sanctum* (OSC, 100 mg/kg, p.o) was used as standard. MEAM at 100 and 500 mg/kg produced significant increases in adhesion of neutrophils and an increase in phagocytic index in carbon clearance assay. Both high and low doses of MEAM significantly prevented the mortality induced by bovine *Pasteurella multocida* in mice. Treatment of animals with MEAM and OSC significantly increased the circulating antibody titre in indirect haemagglutination test. Among the different doses, low one was more effective in cellular immunity models than the high. However, all the doses exhibited similar protection in humoral immunity procedures. From the above findings, it is concluded that MEAM possesses potential for augmenting immune activity by cellular and humoral mediated mechanisms more at low dose (100 mg/kg) than high dose (500 mg/kg)²⁰.

Myocardial infarction: The effect of *Aegle marmelos* leaf extract (AMLE) and alphatocopherol on plasma lipids, lipid peroxides and marker enzymes in rats with isoproterenol (ISO) induced myocardial infarction was carried out. Rats were pre-treated orally for 35 days with different doses of an aqueous AMLE (50 mg/kg, 100 mg/kg and 200 mg/kg) prior to ISO-induced myocardial infarction. The effects on creatine

kinase, lactate dehydrogenase, plasma thiobarbituric acid reactive substances, lipid hydroperoxides, serum lipids and lipoproteins were studied. Pretreatment with AMLE at doses of 100 mg/kg and 200 mg/kg body weight for 35 days showed a significant effect on the activities of marker enzymes, lipid peroxides, lipids, lipoproteins and antioxidant enzymes in ISO-treated rats. The effect of AMLE 200 mg/kg was found to be equal to the effect of alpha-tocopherol 60 mg/kg²¹.

Testicular activity: The aqueous extract of leaf of *Aegle marmelos* at the dose 50 mg/100 g body weight resulted a significant diminution in the activities of key testicular steroidogenic enzymes along with low levels of plasma testosterone and relative wet weights of sex organs in respect to control without any significant alteration in general body growth. Germ cells numbers in different generation of seminiferous epithelial cell cycle were diminished significantly after the treatment of the above extract. The above mentioned dose did not exhibit any toxicity in liver and kidney. Therefore, it may be predicted that the aqueous extract of leaf of *Aegle marmelos* has a potent antitesticular effect at a specific dose²².

Cardiotonic activity: Fresh fruit juice of *Aegle marmelos* plant with different dilutions were used for cardiotonic activity. The activity was tested by using isolated frog heart assembly. The present preliminary studies confirm the better cardiotonic activity of *Aegle marmelos* than digoxin. Further studies can confirm the reduced toxicity & this will be the advantage of *Aegle marmelos* over digitalis²³.

Anxiolytic and Antidepressant activity: The objective of the study was to evaluate the anxiolytic and antidepressant activities of methanol extract of *Aegle marmelos* (MEAM) leaves as well as its interaction with conventional anxiolytic and antidepressant drugs using elevated plus maze and tail suspension test in mice. Albino mice were treated with MEAM (75, 150 and 300 mg/kg, po), imipramine (20 mg/kg, po), fluoxetine (20 mg/kg, po), and combination of sub-effective dose of AM with imipramine or fluoxetine. Effects were observed on (a) time spent on (b) number of entries into (c) number of stretch attend postures (d) number of head dips in arms of elevated plus maze and on duration of immobility in tail suspension test. Antidepressant activity of MEAM (150 mg/kg, po) was significantly decreased by prazosin, haloperidol and baclofen. MEAM showed insignificant effect on locomotor activity of mice. It is concluded that MEAM possess potential anxiolytic and antidepressant activities and it enhances the anxiolytic and antidepressant activities of imipramine and fluoxetine²⁴.

Wound healing activity: Effect of topical and intraperitoneal administration of methanolic extract of *Aegle marmelos* ointment and injection was studied respectively on two types of wound models i.e. the excision and the incision wound models in rats. Both the injection and the ointment of the methanolic extract of *Aegle marmelos* produced a significant response in both of the wound type tested. In the excision model the extract treated wounds were found to epithelialize faster and the rate of wound contraction was higher, as compared to control wounds. The extract facilitated the healing process as evidenced by increase in the tensile strength in the incision model. The results were also comparable to those of a standard drug nitrofurazone²⁵.

Anticonvulsant activity: The anticonvulsant effect of ethanolic extract from the leaves of *Aegle marmelos* on maximal electroshock (MES) or pentylenetetrazole (PTZ) in male mice examined in this study. This medicinal plant

belongs to the Rutaceae family and the leaves are popularly used in the treatment of inflammation, asthma, hypoglycemia, febrifuge, hepatitis and analgesic. The extract of *Aegle marmelos* (orally) was administered in mice at the doses of 100 and 200 mg/kg. The extract suppressed hind limb tonic extensions (HLTE) induced by MES and also exhibited protector effect in PTZ induced seizures, at 200 mg/kg dose. Since the ethanolic extract of *Aegle marmelos* delayed the occurrence of MES and PTZ convulsions, it is concluded that it interfere with gabaergic mechanisms to exert their anticonvulsant effect in addition it reveals the presence of flavonoid attributed to their anti-convulsant action. The activity reported was dose dependent²⁶.

Anti stress and Adaptogenic activity: The standardised dried aqueous extracts of *Aegle marmelos* (SDEAM) were evaluated for anti stress and adaptogenic activities using Swimming endurance and post-swimming motor function test, Cold swimming endurance test and forced swim test in rats. The extracts showed the presence of phenolics, flavonoids, carbohydrates and volatile oils in preliminary phytochemical screening. In present study the test extracts when subjected to forced swim model for adaptogenic activity in rats does not showed an increase in serum cholesterol and serum triglyceride level, but the increase was not sustained on subsequent groups. It also increases the swimming endurance time significantly along with the post motar function like Rota rod falling time and spontaneous motar activity. The test extract also increases the cold swimming endurance time significantly. The test extracts could restrict the increase in the level of these markers during stress²⁷.

Antifertility activity: The study was carried out to evaluate the effective concentration of aqueous extract of *Aegle marmelos* leaves on male reproductive system of albino rats. The study was divided into three groups of six animals each. The first group (I) received distilled water serve as control. The second and third groups (II and III) of animals were administered the aqueous leaf extract daily at 250mg/kg body wt and 350mg/kg body wt., respectively for a period of 45days. Significant decreases in the weights of testis, epididymes and seminal vesicle were observed. A dose related reduction in the testicular sperm count, epididymal sperm count and motility and abnormal sperm count were observed. The results showed that *Aegle marmelos* has effects on male rat reproduction, affecting the sexual behavior and epididymal sperm concentration²⁸.

CONCLUSION

Traditional system of medicine continues to be widely practised for various reasons. Fast populations, inadequate supply of medicines, side effects of several allopathic drugs and ever increasing resistance to current drugs for diseases have led to growing emphasis on the use of plant materials as a source of medicines for human beings. It is strongly believed that detailed information as presented in this review on the phytochemicals and various biological properties of the plant extracts might provide detailed evidence for the use of this plant in different medicines. Historically, *Aegle marmelos* (Bael) has been used for the number of ethnobotanical purposes. At present *Aegle marmelos* has become an important source of medicine for curing various human and animal diseases. Apart from exploring possibilities to prepare standardized drugs by using different plant parts of *Aegle marmelos*, production of jam by using its fruits should be promoted as a health tonic at commercial scale. Unfortunately, most of the compounds have not

properly been evaluated for the exploration of new lead molecule or pharmacophore. Moreover mechanisms of action of a few bioactive compounds have been identified so far. Hence, extensive research is required to find out the mechanisms of action as well as bioactivity of the various phytochemicals and efficacy of the medicinal values of *Aegle marmelos*. Thus in the near future *Aegle marmelos* could be further exploited as a source of useful phytochemical compounds and may play a very important role in modern system of medicine.

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