



## A Review Article On *Aegle Marmelos*: *Pharmacological Activity*

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### Abstract:-

This review article is focused to explore the different pharmacological activity of *Aegle marmelos*. *Aegle marmelos* is one of the most important plants in the medicinal field, with different medicinal properties, belonging to the family Rutaceae. The *Aegle marmelos* is also known as Bael, a wooden apple and bilva plant. It contains various bioactive components in leaves, fruits, flowers, wood, root, and bark which have different biological activities and high therapeutic importance. Uses of bael in day to day life has great nutritional, environmental and commercial importance.

This review article aims to complete the study of biological activities, insecticidal properties and phytochemistry of the *Aegle marmelos* plant.

### Keywords:

*Bael (Aegle marmelos)*, medicinal plant, pharmacological activities, active chemical constituents.

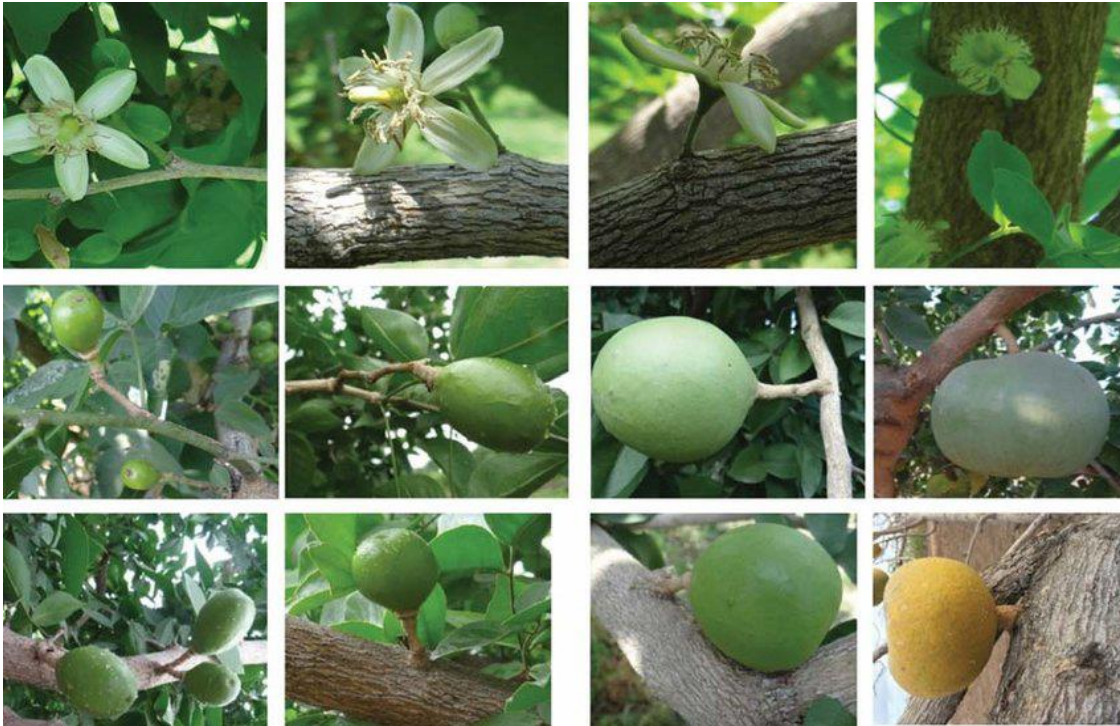
### Introduction:-

Bael plant is one of the important plants in the medicinal field. The tree holds a sacred value among Hindus and its leaves are presented to the Lord Shiva and deities, It is also known as Shivadurme, the tree of Shiva. The tree belongs to Kingdom: Plantae, Order: Sapindales, Family: Rutaceae, Subfamily: Aurantioideae, Genus: *Aegle*, Species: *Aegle marmelos*<sup>1</sup>. Ordinary sized, slender, aromatic tree, 6.0 -7.5 m in height, and 90 to 120 cm in width, ascending to an altitude of 1200 meter in the western Himalayas, *A. marmelos* plant and their plant products are used to cure and relief from physical and mental illness<sup>2</sup>. *Aegle marmelos* is used to prepare different traditional medicines for treatment of various diseases like respiratory tract infections, tumors, nausea, smallpox, mental illness, eye disorders, bronchitis, leprosy, asthma, abdominal problems, fever, inflammation, burning sensation, diarrhea, jaundice, constipation, acute bronchitis, snakebite, acidity, leucoderma, thyroid disorders, burning sensation, epilepsy, spermatorrhoea etc.<sup>3</sup>

In excess of 100 phytochemical compounds have been confined from different pieces of plant, in particular phenols, flavonoids, alkaloids, cardiovascular glycosides, saponins, terpenoids, steroids, and tannins.

These mixtures are notable to have organic and drug activity. Leaf is viewed as one of the greatest accumulatory parts of plants containing bioactive mixtures which are combined as auxiliary metabolites.<sup>4</sup>

The Aegle marmelos is a little variety of three species circulated in tropical Asia and Africa. The tree of A. marmelos starts from Eastern Ghats and focal India and tracked down for the most part in lower regions of Himalayas, Uttar Pradesh, Madhya Pradesh, Rajasthan, Chhattisgarh and Bihar.<sup>5</sup>



**Fig:- Parts of Bael plant** <sup>6</sup>

In India countless things are prepared from bael normal items, for instance, bael sherbet, murabba or syrups. In various countries, for instance, Indonesia and Thailand prepared bael results of the dirt cut pieces are gobbled up as food and syrups are used in making cake ingredients. The treatment of bael natural items moreover produce many waste materials like seeds, fibers, strip, etc <sup>7</sup>

**Table no-1: Scientific classification and vernacular names of Aegle marmelos in India.**

|                      |   |
|----------------------|---|
| <b>Kingdom</b>       | <i>Plantae</i>  |
| <b>Order:</b>        | <i>Sapindales</i>   |
| <b>Family:</b>       | <i>Rutaceae</i>   |
| <b>Subfamily:</b>    | <i>Aurantioideae</i>  |
| <b>Genus:</b>        | <i>Aegle</i>  |
| <b>Species:</b>      | <i>A.marmelos</i>   |
| <b>Nomenclature:</b> | <i>Aegle marmelos (L.) Corr. Serr</i>   |
| <b>Synonyms:</b>     | <i>Bel, Beli, Belgiri (Hindi)</i><br><i>Bilva, shivdharma, shiva phala, vilva (Sanskrit)</i><br><i>Marredy (Malayalam)</i><br><i>Belo (Oriya)</i><br><i>Vilva marum, Vilvama (Tamil).</i> |

**Table-2: Different name of Aegle marmelos**

| Language           | Name   |
|--------------------|--|
| Latin              | <i>Aegle marmelos</i>                          |
| English            | Wood/Stone apple, Bengal Quince, Indian Quince |
| Vietnamese         | Mbau Nau, Trai Mam                             |
| Nepali             | Bel, Gudu                                      |
| Lao (Sino-Tibetan) | Toum   |
| Khmer              | Bnau   |
| Javanese           | Modjo  |
| French             | Oranger du Malabar                             |
| Burmese            | Ohshit, opesheet                               |
| Indonesian         | Mojo tree                                      |

|          |                    |
|----------|--------------------|
| Marathi  | Kaveeth            |
| Urdu     | Bel                |
| Thailand | Maplin, Matum, Tum |
| Orissa   | Belo               |





|         |             |
|---------|-------------|
| Kannada | Bela, Bilva |
| Gujarat | Billi       |

### Phyto-chemistry :-

A.marmelos is contains various active phytoconstituents mainly marmenol, marmin, marmelosin, marmalade, psoralen, isoimperatorin, rutaretin, scopoletin, aegelin, marmelin, fagarine, anhydromarmelin, limonene, â-phellandrene, betulinic acid, marmesin, imperatorin, marmelosin, luvangentin and auraptene.<sup>8</sup> The leaf of bael contains Skimmianine, Aeglin, Rutin, -sitosterol, -sitosterol, Flavone, Lupeol, Cineol, Citral, Glycoside, O-isopentenyl, Hallordiol, Mameline, Citronellal, Cuuminaldehyde phenylethyle cinnamamides, Eugenol and the fruit contain Psoralen, Marmalade, Tannin, Phenol, Marmelosin, Luvangetin, Aurapten, Tannin, Phenol, Tannin, Tannin, Tannin, Tannin, Tannin, Tannin, Tannin.

The seed of bael contain D-limonene, A-D-phellandrene, Cineol, Citronellal, Citral, P-cymene, Cumin aldehyde are essential oils.and bark contain Alkaloids, Fagarine, Marmin, Furoquinoline and root contain Terpenes, Halopine, Coumarins, and Alkaloid.<sup>9</sup>

### Uses of different part of Bael Plant:-

| Name  | Medicinal Uses  |
|---|---|
|  <p><b>Bael fruit</b></p>  | <p><b>Fruit-</b> It is use in astringent, gastric issues, diarrhea, stomachic, antiviral, gonorrhoea, epilepsy, ulcer, anti diabetic, anticancer, antioxidant, antimicrobial.</p> |
|  <p><b>Bael leaf</b></p>   | <p><b>Leaf-</b> It is used in sore, stomach problems, wounds healing, stomach ulcer, cholera, bronchitis, beriberi.</p>   |
|  <p><b>Bael flower</b></p> | <p><b>Flower-</b> It is used in expectorant epilepsy, reducing swelling (inflammation).</p>   |
|  <p><b>Bael seed</b></p>   | <p><b>Seed-</b> It is used in anti pyretic. It shows antidiabetic, anti cancerous, antifertility, antimicrobial, immunogenic, and insecticidal activities.</p>                    |



**Bael bark**

**Bark-** Heart use in stomach problems, fever and heart problems.

## Pharmacological Activity:-

### 1) Anticancer activity –

Bael restrains in vitro multiplication of human cancer cell lines including the leukemia K562, T-lymphoid'. The vast majority of the powerful enemies of disease drugs are costly, mutagenesis, and teratogenic. Organization of concentrate in 400 mg/kg has shown anticancer impact in creature models of Ehrlich ascites carcinoma.<sup>10</sup> In an in-vivo study, Swiss pale skinned person mice with Ehrlich ascites carcinoma got an intraperitoneal infusion of a 400 mg/kg hydroalcoholic concentrate of *A. marmelos*. That altogether expanded middle endurance time as long as 28 days after growth immunization contrasted and the saline-infused control group <sup>11</sup>.

A concentrate likewise showed that the bilwa has anticancer impact in creature model with carcimoma. Preclinical examinations have shown that *A.marmelos* leaf removes were viable in hindering the development of leukemic K562, T-lymphoid Jurkat, Blymphoid Raji, erythroleukemia HEL, melanoma Colo38, and bosom malignant growth cell lines MCF7 and MDA MB-231. Tests have shown that the phytochemicals, for example, lupeol, eugenol, citral, cineole and d-limonene present in *A.marmelos* have antineoplastic effects <sup>12</sup> late examinations in Swiss pale person mice have uncovered that a methanolic organic product mash concentrate of *A. marmelos* has solid preventive properties against DMBA-initiated cutaneous papilloma beginning. In the pre commencement stage (7 days when DMBA application), organization of the bael separate orally (50 mg/kg B.W.) brought about a 70% decrease in growth frequency, while the post-inception stage (beginning of croton oil treatment to the furthest limit of the examination) brought about a half reduction in cancer commonness. Bael natural product likewise diminished the general number of growths, recurrence of event per creature, and cancer creation, suggesting that it very well may be utilized as a chemo-Preventive drug. <sup>13</sup>

### 2) Antibacterial Activity:-

The concentrates referenced above were tried against five pathogenic bacterial strains, three gram-positive microscopic organisms (*B. cereus*, *S. epidermidis*, and *S. aureus*), and two gram-negative microscopic organisms (*E. aerogenes*, *K. pneumoniae*)<sup>14</sup>. Ethanol and chloroform leaf concentrates of *Aegle marmelos* were viewed as more active towards the bacterial species tried. Further, the fluid leaf extricate was tolerably active followed by dichloromethane removal. Be that as it may, oil ether extricate was not powerful against any of the creatures tried. Development of *Lactobacillus bulgaricus* also, *Bacillus cereus* was not restrained by any of the tried leaf concentrates of *Aegle marmelos*.<sup>15</sup> Leaf removes have shown a movement against *Escherichia coli*. The natural balm from the leaves showed movement against *Aeromonas sp**Escherichia coli*, *Pseudomonas solanacearum* and *Xanthomonas vesicatoria*. The ethanolic concentrate of the root has shown action against *Vibrio cholerae*, *Salmonella typhimurium*, *Klebsiella pneumoniae*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Bacillus subtilis* and *Staphylococcus aureus*. The ethyl acetic acid derivation concentrate of the plant displays an action against *Vibrio cholerae*, *Salmonella typhimurium*, *Staphylococcus aureus*, *Pseudomonas putida* and *Bacillus anthracis*.<sup>16</sup>

### 3) Antimicrobial Activity:-

It has been expressed that *A. marmelos* has customarily been utilized to treat different irresistible issues by repressing many destructive microorganisms. The antibacterial action of *A. marmelos* leaves and natural product remove was researched. The utilization of leaf and natural product removes against *Roultella plantikola* brought about restraint zones of 11 mm and 9 mm, individually. The plant extricate delivered a most extreme restraint zone of (18mm) movement against the contagious strain *Penicillium chrysogenum* and a base hindrance zone of (7mm) action against *Candida albicans*.<sup>(17)</sup> antimicrobial medications are utilized in restorative practice for treating food borne sickness. Utilization of restorative plants that are wealthy in antimicrobial compounds could be an elective method for wiping out these microorganisms. The concentrate of *Aegle marmelos* groups antimicrobial movement. It has been found dynamic against different species, for example, *Staphylococcus aureus*, *epidermidis*, *Proteus vulgaris*. It has additionally been utilized for ranikhet illness infection and gastrointestinal parasites. The natural oil acquired from the leaves of bael shows variable adequacy against various contagious separates and cause focus as well as time subordinate restraint of spore germination of the relative multitude of parasites tried, including the opposition organism, *Fusarium udum*.<sup>18</sup>

### 4) Antifungal Activity:-

Medicinal balm from *Aegle marmelos* leaves might intrude with the  $Ca^{2+}$ -dipicolonic destructive metabolic pathway and perhaps limit spore improvement, according to an assessment. *A. marmelos* leaf eliminates in ethanol, methanol, and water showed antifungal sufficiency against dermatophyte organic entity. The antifungal activity was performed by tube weakening MIC strategy and furthermore. This action was performed by utilizing 21 days old culture of dermatophytic growths with refined water. The suspension was changed spectrophotometrically to an absorbance of 0.0600 at 450 nm. Weakness testing was executed by miniature weakening strategy. Powerful antifungal action was found when *A. marmelos* leaf extricate was applied against *Trichophyton mentagrophytes*, *T. rubrum*, *Microsporum canis*, *M. gypseum*, *Epidermophyton floccosum*.<sup>20</sup>

### 5) Anti-acne Activity:-

A skin condition known as skin break out causes a flare-up of zits or pimple-like flaws. Skin break out vulgaris is the name of the illness that influences teens the most often. The prescriptions known as anti acne meds assist a high schooler with skin break out dispose of their pimples, clogged pores, whiteheads, and more serious types of injuries.<sup>21</sup>

### 6) Anti-inflammatory and Antipyretic Activity:-

The review inspected the likely mitigating exercises of the rehashed separates from *A. marmelos* leaves. An evident pain relieving impact was shown in mouse models of carrageenan-actuated paw edema and cotton-pellet granuloma to lay out the antipyretic and pain relieving exercises of the leaf extricates. Furthermore, the early and late periods of paw licking were lessened, and hyperpyrexia diminished.<sup>22</sup> Watery concentrate from unripe *A. marmelos* natural product was found to have a portion subordinate effect in an alternate examination focused on provocative gut illness in pale skinned person Wistar rodents. With a lot higher Grass and lower MDA levels and safeguard against pole cell degranulation, *A. marmelos* organic product had calming, cancer prevention agent, and pole cell balancing out properties.<sup>23</sup> In another research, the anti-inflammatory properties of the aqueous extract of *A. marmelos* dry flowers are investigated in Wistar rats. The anti-inflammatory activity of water extract were more effective at 200 mg/kg two hours after administration.<sup>24</sup>

### 7) Anti-diabetic Activity:-

Leaf concentrate of *A. marmelos* is a significant medication for the treatment of diabetes. It additionally upgrades the capacity to use the outside glucose load in the body by excitement of glucose take-up like insulin. Aegle leaf remove fundamentally diminishes the degrees of blood urea and cholesterol and furthermore diminishes oxidative pressure in trial diabetic creatures, it is demonstrated by critical decrease in lipid peroxidation, formed diene and hydroperoxide level and expanded degrees of different proteins like superoxide dismutase, catalase, glutathione peroxidase, and glutathione levels in serum as well as liver. Leaf separate in *A. marmelos* shows the counter diabetic and hostile to hyperlipidaemia impact of allopolysyherbal plan in oral glucose resistance test and STZ-actuated diabetic rodent model. It fundamentally upgrades glycaemic control, safeguards the pancreas. from degeneration, and shows cancer prevention agent and hepatoprotective impacts. *A. marmelos* separate likewise represses aldose reductase chemical and shows its defensive job in diabetic waterfall. It likewise shows in vitro inhibitory impacts on gastrointestinal  $\alpha$ -glucosidase and pancreatic  $\alpha$ -amylase. The leaves separate like forestalls. optional difficulties in STZ-prompted diabetic rodents because of the presence of limonene as a powerful enemy of glycyating specialists. Bark remove shows hypoglycaemic and  $\beta$ -cells regenerative impacts in STZ-actuated diabetic rodents. *A. marmelos* leaf remove further develops tissue cancer prevention agent protection framework and reestablishes histological changes of pancreatic B-cells in STZ- induced diabetic rodent. <sup>25</sup>

### 8) Anti-diarrheal Activity:-

Antidiarrheal movement is one of the main restorative properties of *A. marmelos* and controlling persistent loose bowels and dysentery is broadly utilized. As of late, a few in vitro and in vivo examinations are led to affirms the antidiarrheal movement in *A. marmelos*.

The in vitro antidiarrheal movement in dried organic product pulps of *A. marmelos* was performed. Antidiarrheal movement was directed by MIC technique against the causative organic entities of looseness of the bowels.<sup>26</sup>

The ethanolic remove displays great movement against *Shigella boydii*, *S. sonnei* and *S. flexneri*, ordinary against *S. dysenteriae*. Rough fluid concentrate of unripe products of *A. marmelos* was isolated for causative specialists of the runs. The concentrate was identified for antibacterial movement, anti-giardial action and antirotaviral action and furthermore the concentrate displays an inhibitory action against *Giardia* and rotavirus though the reasonability of none of the six bacterial strains tried was impacted <sup>27</sup>. In another review, concentrate of *A. marmelos* was tried for its impact on colonization of *E. coli* E134, *E. coli* B170, and *S. flexneri*. The outcomes showed that there is a lessening in colonization, maybe because of its effect on the digestion of HEp-2 cells or potentially because of change of cell receptors that limit bacterial adherence, as found in the pre-hatching of HEp-2 with the concentrate. The concentrate displays more noteworthy restraint of adherence of *S. flexneri* and *E. coli* E134 when contrasted with intrusion of *E. coli* B170. Since microorganism grip to the covering of the gastrointestinal lot is the earliest phase of the disease cycle and hindering intrusion/adherence could be a basic piece of the antidiarrheal impact of the plant <sup>28 29</sup>.

### 9) Wound healing activity:-

The effect of skin and intraperitoneal association of methanolic concentrates of *Aegle marmelos* emollient and mixture on two kinds of turned models in rodents, extraction and section point, was investigated. The mixture and balm of *Aegle marmelos* methanolic separately got basic responses in both. As demonstrated by an addition in versatility in the section point model, the pack assists in the retouching with cycling. The results stood out from those of the scrutinized drug nitrofurazone.<sup>30,31</sup>

### 10) Radioprotective effect :-

The compelling utilization of radiotherapy in disease fix and concealment is undermined by the aftereffects coming about because of radiosensitivity of lining ordinary tissues, which are constantly presented to the cytotoxic impacts of ionizing radiation during therapy. In this present circumstance, utilization of radioprotective mixtures that can safeguard typical tissues against radiation injury are of gigantic use.

Radiation sickness impacts are basically the consequence of the age of free extremists, and the cell reinforcement that counters them should be of enormous use in forestalling them.<sup>32</sup> In mice presented to different measures of gamma radiation, the radioprotective impact of bael natural product hydroalcoholic remove was researched. Prior to being exposed to 10 Gy 60Co gamma-beams, Swiss pale skinned person male mice were controlled 5, 10, 15, 20, or 40 mg/kg Aegle marmelos removed intraperitoneally consistently for 5 days. Following 30 days of post-radiation treatment, most survivors report greatest security.<sup>33</sup>

### 11) Antioxidant activity:-

The DPPH extremist rummaging technique, the decreasing power examine, the nitric oxide searching measure, the superoxide revolutionary rummaging measure, the ABTS revolutionary rummaging test, and the water extremist rummaging measure were utilized to decide the cell reinforcement action of A. marmelos organic product mash methanolic and fluid concentrate. The cell reinforcement movement of both the watery and alcoholic concentrates was high. Unripe organic product moreover showed a more noteworthy free extreme hindrance rate than ready natural product <sup>34</sup>. There are two potential methods of work of cell reinforcement. One is by getting oxidized itself or by making a defensive layer around the dynamic constituents of the material. The cell reinforcement movement present in the Aegle marmelos affirms the hepatoprotective action in something very similar, and it has likewise been accounted for <sup>35</sup>.

### 12) Ulcer Healing :-

In albino rats, A. marmelos natural product mash removal brings down mucosal thickness, superoxide dismutation, catalase action, and glutathione levels impressively. Ulcer record, aspartate aminotransferase, alanine aminotransferase, and lipid peroxidation movement all expanded essentially. This information proposes that a cell reinforcement system might influence A. marmelos' gastroduodenal precaution and antiulcerogenic impacts<sup>36</sup>. Fluid concentrate of Aegle marmelos leaves was ready and utilized for examination. A day-to-day portion of 1 gm/kg body weight of concentrate organization orally for 21 days. The volume of gastric emission, ulcer sore count, pepsin count, PH absolute action, hexoseamine content were assessed<sup>37,38</sup>. Another review demonstrated that A. marmelos natural product mash removes treated pale skinned person rodents show a critical lessening in mucosal thickness, superoxide dismutase, catalase movement and glutathione level. A huge expansion in ulcer record, aspartate aminotransferase, alanine aminotransferase, lipid peroxidation movement was likewise noticed. These outcomes propose that gastro duodenal defensive and antiulcerogenic properties of A. marmelos may likewise depend upon antioxidant mechanisms <sup>39,40</sup>

### 13) Insecticidal activity:-

Tests were completed to decide the capability of utilizing rejuvenating oil from leaves of Aegle Marmelos to control bug invasion of put away gram from *Callosobruchus chinensis*(L.)(Bruchidae) and wheat from *Rhyzopertha dominica* (F.) (Bostrychidae), *Sitophilus oryza* (L.) (Curculionidae) *Tribolium castaneum* (Herbst) (Tenebrionidae). In the wake of presenting the test bugs, put away gram and wheat samples were disinfected with medicinal balm of Aegle marmelos at 500 µg/mL.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 *Callosobruchus chinensis* in treated cowpea seeds. The oil protected stored gram from *Callosobruchus Chinensis* and wheat from *Rhyzopertha dominica* and *Sitophilus oryzae* for two years. Limonene (88%) was found to be the major components 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 *Callosobruchus 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 grains.<sup>41</sup>



#### 14) Antiviral activity:-

The in vitro antiviral exercises of different pieces of the Aegle marmelos tree have been thought about for their adequacy in contrast to human coxsackie infections B1-B6. The IC<sub>50</sub> of leaves, endlessly stem bark, natural product, endlessly root bark and the unadulterated compound marmelide are 1000,500-1000,250-500 and 62.5 µg/ml respectively. though, the IC<sub>50</sub> of ribavirin, a standard antiviral specialist, is 2000 µg/ml for the equivalent infections and simultaneously period. Marmelide is the best virucidal specialist disrupting early occasions of its replicative cycle. It appears to be that Aegle marmelos has antiviral exercises in the beginning phases of viral replication with least host cytotoxicity as opposed to current virucidal chemotherapeutic specialists (i.e.ribavirin), which typically act in the later phases of viral replication and make powerful side impacts. The impact of Aegle marmelos.

Removes additionally on the late protein blend should be studied to assess its level of probability as an antiviral specialist. The half ethanolic concentrate of the natural products has shown antiviral movement against Ranikhet infection. The Aegle marmelos natural product remove has shown interferon-like action against a similar infection yet not against vaccinia infection. In this way Aegle marmelos has better virucidal potential and might be taken advantage of as a strong antiviral specialist in the not so distant future.<sup>42</sup>

#### 15) Immunomodulatory Activity:-

The immunomodulatory activity of methanolic concentrate of Aegle marmelos a natural product (MEAM) in an experimental model of resistance was done by neutrophil attachment test and carbon freedom examine, whereas, humoral invulnerability was broken down by mice lethality test and circuitous haemagglutination measure. MEAM dose was chosen by Step case technique (all over) and directed at 100 and 500 mg/kg, p.o) was orally. The Ocimum sanctum (OSC, 100 mg/kg, p.o) was utilized as standard. MEAM at 100 and 500mg/kg delivered huge expansions in the grip of neutrophils and an expansion in phagocytic record in carbon leeway measure. Both high and low doses of MEAM altogether forestalled the mortality induced by ox-like Pasteurella multocida in mice. Treatment of creatures with MEAM and OSC essentially expanded the circling neutralizer titre in circuitous haemagglutination test. Among the various dosages, low one was more compelling in cell resistance models than the high. In any case, every one of the portions displayed comparative assurance in humoral resistance strategies. From the above discoveries, it is inferred that MEAM has potential for expanding resistant action by cell and humoral interceded systems more at low portion (100 mg/kg) than high portion (500 mg/kg)<sup>43</sup>.

#### 16) Cardioprotective activity:-

Unripe fruit alcoholic extracts have been found to produce cardioprotective effects in isoproterenol induced myocardial infarction. This activity is due to the presence of a potent compound known as auraptin.<sup>44</sup>

#### 17) Antihyperlipidemic activity:-

Oral organization of watery concentrate of Aegle marmelos products of the soil independently to a portion of 250 mg/kg to streptozotocin incited diabetic rodents essentially brought down the serum fatty oils, fat digestion, blood cholesterol and tissue lipid profile<sup>45,46</sup>.

#### ● Conclusion :-

Medications obtained from plants have made enormous commitment towards the improvement of human wellbeing and go about as a source of motivation for novel medication compounds. From the above research it tends to be reasoned that this plant can possibly be utilized in the space of pharmacology and as a planned source of important medications. Because of the presence of different mixtures that are fundamental for good wellbeing, it can likewise be utilized to further develop the wellbeing status of society. Almost every part of this plant is used to treat a variety of illnesses, in that the leaf, fruit, seed, bark, and root. Given the Bael tree's good potential, it should either be cultivated or preserved in order to maximize its potential for exploitation and the discovery of new and effective herbal treatments. To produce goods for better economic and therapeutic usage, a comprehensive research and development effort should be undertaken.

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