

A Review on Common Forest Trees: Traditional and Pharmacological Uses

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ABSTRACT

Forest plants are good source of medicinal agent for thousands of years. Plants and their products have been the primary resource of food and medicines; a number of modern drugs have been isolated used to serve the living world. *Azadirachta indica* has been used as more than 4000 years due to its medicinal activity. This tree considered as a potential source of naturally occurring insecticide and pesticide. Capsules, tablets, creams, soaps, shampoos and other useful products are developed from the stems, roots, leaf and young fruits of the tree. *Pongamia pinnata* (karanj) well recognized to human society for its traditional system of medicine used against many diseases. All parts of this tree are traditionally used as curing agent of for bronchitis, rheumatism, diarrhoea, whooping cough, gonorrhoea, leprosy and many more. *Aegle marmelos* commonly known as bel is highly appreciated as aromatic plant. Leaf of this plant is reported as principal source of many numbers of chemical constituents and various therapeutic products by many researchers. Other parts are also recorded for producing compounds like; terpenoids, alkaloids, coumarins, fatty acids and amino acids. The present review, three common forest plants were documented for their traditional and pharmacological activity such as; neuroprotective and hepatoprotective effect, antitumor, antidiabetic, antiviral, anti-inflammatory, antipyretic analgesic, antimalarial, antimicrobial activities.

Keywords: Forest plants; Traditional uses; Therapeutical properties; Pharmacological activity

INTRODUCTION

Forest is the word enough to understand the role of it in the entire world. Human beings have been depending on nature mostly on forest for their food-stuff, shelter and clothing. Therefore, forest trees main source for survival living world. Apart from this basic requirement, trees available in the forest is well known for their medicinal properties and play a vital role in the healthcare system, where herbal medicine has a continuous history of long-term use [1]. The world health organization (WHO) says that the 80% of the population depends mainly on traditional medicine for their primary health care, whereas half of the world's population still relies entirely on plants for medicines. In this review, three common forest plants (*Azadirachta indica* A. Juss, *Aegle marmelos* (Linn) Pierre and *Pongamia pinnata* (Linn) Pierre) have been taken into account to establish a valuable record on their traditional use as well as pharmacological properties (Table 1).

LITERATURE REVIEW

A. indica (tree neem) is also known as a divine tree, because all parts as flowers, leaves, seeds, and bark have been used to treat both acute and chronic human diseases. Mostly treated for pyrexia, headache, ulcer, respiratory disorders, cancer, diabetes, leprosy, malaria,

dengue, chicken pox, and dermal complications. Pharmacological properties like anti-inflammatory, hepato-protective, anti-oxidant, hypolipidemic, microbicidal, antidiabetic, antipyretic, hypoglycemic, nematocidal, antiulcer, neuroprotective, insecticidal, anti-fertility, cardio-protective properties are recorded. It also well known for various phytochemicals products like terpenoids, fatty acids, alkaloids, steroids, flavonoids and carbohydrates [2-4]. *Pongamia pinnata* is a traditional medicine Ayurveda and use to treat various kinds of diseases including diabetes mellitus [5]. It has multipurpose benefits and as a potential source of biodiesel, seeds contain about 28-34% oil with high percentage of polyunsaturated fatty acids [6,7]. Whole part of plant has been used as a crude drug, for itches, painful rheumatic joints wounds, ulcers, diarrhoea, tumours, piles, skin diseases etc [8]. It is eco-friendly to environmental and strongly recommended for agriculture due to its insecticidal and nematocidal activity.

Finding says that, *P. pinnata* is known as effective source of biomedicine, bioactive compounds [9,10]. Hence, an attempt has been taken to make a comprehensive review of traditional uses along with pharmacological properties analysis of these common forest trees which may create a freedom path of cure from most of the diseases. *A. marmelos* (Beal) a plant is ritually used in most of the Indian community. All parts of the plant; root, bark, leaf, flower,

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Received: April 22, 2021, **Accepted:** May 07, 2021, **Published:** May 14, 2021

Citation: Panda J, Mishra AE (2021) A Review on Common Forest Trees: Traditional and Pharmacological Uses. J Forest Res. 10:262.

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Table 1: Profile of the plants used for study.

<i>Azadirachta indica</i> A. Juss		<i>Pongamia pinnata</i> (Linn) Pierre		<i>Aegle marmelos</i> (L.) Correa	
Kingdom	Plantae	Kingdom	Plantae	Kingdom	Plantae
Division	Magnoliophyta	Sub-kingdom	Tracheobionta	Order	Sapindales
Class	Dipsacales	Super division	Spermatophyta	Family	Rutaceae
Order	Rutales	Division	Magnoliophyta	Subfamily	Aurantioideae
Sub-order	Rutinae	Class	Magnoliopsida	Genus	Aegle
Genus	Azadirachta	Subclass	Rosidae	Species	<i>marmelos</i>
Species	<i>indica</i>	Order	Fabales		
		Family	Fabaceae		
		Genus	Pongamia		
		Species	<i>pinnata</i>		

fruits, seed and even its latex are also used in traditional system of medicine. The fruit is having great pharmacological activity in the field of anti-dyspepsia, anti-diarrhoea and anti-dysentery. It also recommended for dietary supplements, intermittent fever, hypoglycaemic effect, antimicrobial, anti-proliferative activity, wound- healing activity, analgesic, anti-inflammatory, anti-pyretic, anti-dyslipidaemia activity, Immunomodulatory activity, mental disease, anti-fertility, and many more [11,12].

Traditional uses

Azadirachta indica

More than 140 compounds have been isolated from several parts of *A. indica*. They already have been used in traditional practices for treating inflammation and infections; fever, skin diseases as well as dental disorders. The leaves as well as its constituents use to exhibit immunomodulatory as well as anti-inflammatory and anti-hyperglycaemic activities; antiulcer; antimalarial; antifungal; antibacterial; antiviral; antioxidant; anti-mutagenic as well as anti-carcinogenic characteristics [13,14]. Neem plant preparations are also used by the natural healers for diverse disorders such as leprosy, gastro-intestinal problems, malaria, intestinal helminthiasis, tuberculosis, ringworms, skin disorders, boils, epilepsy, fever, respiratory distress, nausea, ulcers and in health industries also [15,16]. Modern scientists are exploiting more uses of this incredible tree. Different parts of neem plant such as bark, stems, leaves, fruits, flowers and seeds possess compounds such as flavonoids, tannins, flavonoglycosides, arabinofucoglucanes, dihydrochalocones and others with proven immunomodulatory, antiseptic, diuretic, emmenagogue, febrifuge, antipyretic, antidiabetic, anthelmintic, anti-inflammatory, analgesics, antifeedant, antiviral, antifungal, contraceptive, *in vitro* spermicidal, insecticide, pediculocide, parasiticide, antimutagenic and anti-ulcer properties since antiquity [17,18]. Neem Leaf Meal (NLM) may be useful ingredient in diet of broilers due to its medicinal and nutritional importance [19]. Nimbidiol present in root and bark of neem tree can inhibit intestinal glucosidases thus helpful in control of diabetes [18].

Pongamia pinnata

The plant has been used in traditional medicine for bronchitis, whooping cough rheumatic joints and to quench dipsia in diabetes [9]. The leaves are hot digestive, laxative, anthelmintic and cure piles, wounds and other inflammations. A hot infusion of leaves is used as a medicated bath for relieving rheumatic pain and for

cleaning ulcer in gonorrhoea and scrofulous enlargemen [20]. Extract of leaves, roots and seeds are used to treat infection diseases such as leucoderma, leprosy, lumbago, muscular and articular rheumatism [21]. The seed oil of *P. pinnata* possesses medicinal properties and used in itches and other skin diseases [15]. Flowers are prescribed for glycosuria and as remedy for diabetes [22]. The bark is used internally for bleeding piles, beriberi and diabetes and as an antimicrobial [23,24]. Karanja seed is used as a medicinal plant, particularly with the Ayurvedic and siddha medicine system of India. Leaves are active against micrococcus; their juice are used for cold, cough, diarrhoea, dyspepsia, gonorrhoea and leprosy and seed oil is used in scabies, leprosy, piles, ulcers, chronic fever, lever pain; Roots are used for cleaning gums, teeth and ulcers. Powdered seeds are valued as febrifuge, tonic and in bronchitis and whooping cough [24].

Aegle marmelos

All parts of *A. marmelos* are useful like leaves, fruit pulp, and flower, stem bark, root bark etc. Leaves are used as the inflammation of the mucous membrane having a free discharge and for asthma. Leaves are also helping in eliminating fever and promote the removal of mucous secretion. Juice of the leaves is given in the abnormal accumulation of liquid in the cellular tissue. A hot poultice of the leaves is applied in ophthalmia or severe inflammation [25]. The root and sometimes the stem bark is useful in case of intermittent fever and also in hypochondriasis and palpitation of the heart. In case of children, decoction of root is given with sugar and fried rice for checking diarrhoea and gastric irritability [26]. Root is main ingredients of Dasamoola a standard Ayurvedic remedy for loss of appetite and inflammation of uterus. 8 Drug like; tonic for stomach and intestine, anti-dysenteric, antidiabetic, diaphoretic and as local anaesthetic are prepared from flowers distillation [27]. During convalescence after diarrhea fruit is taken. It is recommended for its mild astringency and as remedy for dysentery. In southern Chhattisgarh, dry powder of fruit with mustard oil used for the treatment of burn cases. One part of powder and two part of mustard oil are mixed and applied externally. Fruits uses are highly recommended in gastric troubles, constipation, laxative, tonic, digestive, stomachic, brain and heart tonic, ulcer, antiviral etc. [28,29]. The ripe fruit promotes digestion and very useful in treating inflammation of rectum. Antiviral activity against ranikhet disease virus has been reported from the ripe fruit extract. The ripe fruit is sweet, cooling, aromatic and nutritive when taken fresh. Fruit pulp is used as prevention during cholera epidemics,

prevent the growth of piles, useful in patients suffering from chronic dysenteric, whereas fresh juice can made lower the blood sugar [27,28] Fine powder of unripe fruit found to be effective against *Entamoeba histolytica* and *Ascaris lumbricoides* and also on intestinal parasites. It is used as an astringent in dysentery, stomachache in diarrhea, tonic, digestive, demulcent, described as cardiacal, restorative, given in piles [30].

Pharmacological activities

Azadirachta indica

Anti-tumor and anti-viral activity: Parts of the *Azadirachta indica* (seed oil, bark, and leaves) contain limonoids and polysaccharides which reduce tumors and cancers, and found to be potency against lymphocytic leukemia. Leaf extract inhibits the mitotic cell division and many research works have also highlighted the pronounced antiviral effect against Small pox, Fowl pox, Polio and HSV as assessed by virus prevention assay. Leaf extracts (aqueous) and oil fraction also found with antiviral activity against HIV and Polio viruses [31].

Anti-malarial activity: *A. indica* bark were soaked in 5% neem oil and then diluted in acetone and in 45 days the breeding of *Anopheles stephensi* and *Aedes aegypti* were controlled, by placing in water storage tanks [32]. Nimbolide isolated from plant extracts show the antimalarial activity by inhibiting the *Plasmodium falciparum* growth [33]. Bark and leaves extract in aqueous and alcohol form found with antimalarial activity, particularly on chloroquine-resistant strains [34].

Neuroprotective effects: Leaf of *A. indica* found with neuroprotective effects against cisplatin (-CP), induced neurotoxicity and which conclude that morphological findings of *A. indica* before and after Cisplatin injection implied a well-preserved brain tissue. *A. indica* targeted groups reflected with no changes, in biochemical parameters [35].

Anti-diabetic activity: Concentrate ethanolic (90%) extract of *A. indica* and *Andrographis peniculata* were tested for hypoglycemic activity and found that ethanol leaves extract (1 gm/kg) of *A. indica* and *A. peniculata* playing a major role in reducing the increased blood glucose level [36]. Limonoids from *A. indica* are well known for their medicinal potential against pancreatic α -amylase, a known anti-diabetic target. It has been observed that, the limonoids azadiradione and gedunin could bind which alternatively inactivate anti-diabetic target. This may lead drug candidates to control post-prandial hyperglycemia [37]. *A. indica* is well known for alternative source in the management of diabetes, which controls increased blood glucose level during diabetes mellitus [38].

Hepato-protective effect: Report says that, the hepatoprotective role of azadirachtin-A in carbon tetrachloride (CCl_4) Found with hepatotoxicity in rats and histology and ultrastructure which ultimately leads to azadirachtin-A dose-dependently reduced hepatocellular necrosis [39]. Leaf powder *A. indica* found to be effective against CCl_4 induced hepatic damage. It has been studied that aqueous slurry of neem leaves powder removes all the markers (changed due to CCl_4 activity) to maintain normality. The markers used were recorded as; GPT, GOT, glucose, bilirubin, cholesterol, alkaline, phosphate, and total protein [40].

Anti-inflammatory, antipyretic and analgesic activities: Chloroform extract of *A. indica* (mainly stem bark); NLEa and NLEe found with effective against carrageenan-induced paw edema in rat and mouse ear inflammation, not only animal but also human especially in case of children, inflammatory stomatitis is treated by using the bark extract. Oil of *A. indica* is well recorded for its antipyretic activity properties. Leaves extracts using methanol found having antipyretic effect by applying to rabbits (particularly in male) [41].

Anti-ulcer activity: Leaf extract (aqueous and ethanol) of *A. indica* was tested for antiulcer in Wistar albino rats. The experiment was carried out by determining and comparing the ulcer index in the test drug group, in which Ranitidine 20 mg/kg was used as standard and distilled water played the role of negative control group. NLEa and NLEe 400 mg/kg orally found with inhibited to Wistar albino rats. The extract (400 mg/kg) recorded with significant decrease in gastric volume, free acidity, total acidity, combined acidity and ulcer index as compared to control. This observation reflects that, the used extracts of *A. indica* with anti-ulcer properties which may be either due to cytoprotective action of the drug [42].

Anti-microbial activity: The alcoholic leaf extracts of *A. indica* were tested against human pathogenic bacteria *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Salmonella typhimurium* and *Bacillus pumilus*. Many concentrations of each extract 200 mg/ml, 150 mg/ml, 100 mg/ml, 50 mg/ml, 25 mg/ml were tested with compared to gentamycin 10 mg and gentamycin 200 mg. But methanolic and ethanolic extracts found with very promising result against *Bacillus pumilus*, *Pseudomonas aeruginosa* and *Staphylococcus aureus* [43].

Anti-bacterial activity: *E. coli*, *Proteus vulgaris*, *Micrococcus luteus*, *Klebsiella pneumonia*, *Bacillus subtilis*, *Enterococcus faecalis* and *Streptococcus faecalis* were screened for antibacterial properties by using the hexane, chloroform and methanol extracts of *A. indica*. Methanolic extracts found with high effective and hexane extracts with low bioactive properties, while extracts of chloroform observed maintaining a balanced antimicrobial activity [44].

Anti-fungal activity: Leaves extracts of *A. indica* were prepared by using different solvent system (aqueous, ethanol and ethyl acetate) with different concentration and tested against some human pathogens like; *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus terreus*, *Aspergillus fumigates*, *Microsporum gypseum* and *Candida albicans*. It is found that, 20% ethyl acetate extract showed maximum inhibition as compared to other extracts of same concentration [45].

Anti-oxidant compounds: In the body, free radicals are formed normally but the molecules of free radicles are unstable, which ultimate make damage in other cells. Sometimes these leads to saviour disorders including eye health, cataracts and macular degeneration, cardiovascular disease and even in maximum time leads for cancer due to high levels. *A. indica* act as protective agent for chemically induced carcinogens and liver damage, mostly done by high antioxidant compounds [45].

Vitiligo: It one type of autoimmune disorder that causes skin patches to lose its colour. It has been reported that, 4g *A. indica* leaves three times a day before each meal and its oil application in the affected areas is capable of reversal of discoloration [15,40].

Pongamia pinnata

Anti-microbial activity: The oil obtained from *P. pinnata* reported for antimicrobial activity against *Aspergillus niger*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Pharmaceutical compounds or bioactive product may be discovered from this species which also may fulfil the future therapeutic needs. Study on bioactive compound may help in formulation and new potent antimicrobial compound from natural source [24].

Anti-ulcer activity: *P. pinnata* root extracts (aqueous) have a significant role in decreasing of gastric juice volume, and peptic activity without any effect on mucin activity in acetyl salicylic acid (ASA) ulcerated rats. However, it plays a vital role in decrease ulcer index, remarkable ulcer protective effect of methanolic extract of *P. pinnata* roots was attributed to the augmentation of mucosal defensive factors like mucin secretion, life span of mucosal cells, mucosal cell glycoprotein's, cell proliferation and prevention of lipid peroxidation. It was observed that, a deviation in hexose and fructose content of carbohydrate, but mucin activity remains stable [41].

Anti-diarrhoeal activity: *P. pinnata* has been evaluated for its effect on production and action of enterotoxins by the antimicrobial effects of crude leaf extracts. The extraction found with negative for antibacterial, anti- diarrhoeal, anti- rotaviral activities but help in reduce of the production of cholera toxin and bacterial invasion to epithelial cells, which put a view that *P. pinnata* extraction is efficacy against cholera with selective anti- diarrhoeal properties [42].

Anti-plasmodial activity: *P. pinnata* was studied for anti-plasmodial properties through the ethanolic extracts against *Plasmodium falciparum* and a notable anti-plasmodial activity was observed [43].

Anti-oxidant and anti-hyper-ammonemic activity: Leaf extract of *P. pinnata* found with antioxidant activity and circulatory lipid peroxidation, been estimated in ammonium chloride induced hyper ammonium rats. It helps in increase lipid per oxidation in the circulation of ammonium chlorides treated rats, which found with notable decrease in the level of vitamin A, C and E, which further reduces catalyse glutathione, superoxide dismutase and glutathione peroxide [44].

Anti-viral activity: Antiviral activity was examined by *in vitro* against two type of virus; type-1 (HSV-1) and (HSV-2) in vero cells. *P. pinnata* extract (crude aqueous) found with totally inhibited the growth of target virus at concentration of 1 and 20 mg/ml (w/v) respectively [45].

Anti-lice activity: Initially, growing pattern of pediculocidal drug resistance to head louse put the base for research in exploring novel anti-lice agent for plant sources [46,47]. Leaf of *P. pinnata* were tested against the head louse pediculus humanus capitis and of chloroform, P. E, methanol and water of *P. pinnata* leaves was evaluated for the potential pediculocidal and ovicidal activity by a filter paper diffusion method. It is found that, P. E. extract possess anti and methanol extract showed moderate pediculocidal effects [48].

Anti-inflammatory activity: Report says that, ethanolic (70%) extract of *P. pinnata* leaves has found with anti-inflammatory activity against different phases (acute, subacute and chronic) of inflammation without any side effect on gastric mucosa [49,50]. And also noted for antipyretic action of the extract against Brewer's yeast induced pyrexia [51].

Aegle marmelos

Antibacterial activity: Leaf extracts of petroleum ether, dichloromethane, chloroform, ethanol and aqueous of *A. marmelos* leaves were tested against selected Gram (+ve) and Gram (-ve) bacteria, found that phytochemical extracts with major antibacterial activity. Ethanol and chloroform leaf extracts resulting active towards the tested bacteria. The aqueous leaf extract was moderately active followed by dichloromethane extract and petroleum ether extract found with no activity. Two bacteria; *Lactobacillus bulgaris* and *Bacillus cereus* were found resistant to leaf extracts [52].

Anti-inflammatory, anti-pyretic and analgesic activity: *A. marmelos* were tested for anti-inflammatory property by the serial extract of leaves and analgesic and antipyretic activity also were tested. A large number of extracts obtained from the studied plant showed a major role in inhibition of the carrageenan induced paw oedema and cotton-pellet granuloma in rats. The extracts also reported for notable analgesic properties by decreasing the early and late phases of paw licking in mice. Extracts also found with significant reduction activity for hyperpyrexia in rats. This study was evident for anti-inflammatory, antinociceptive and antipyretic properties of *A. marmelos* [53].

Hepato-protective activity: The study was carried on four groups of animals and targeted animals were treated with 30% ethyl alcohol for a period of 1 month and 10 days and leaves powder of the plant 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 µg/g tissue respectively. Findings were compared with the standard herbal drug silymarin (133.04 µg/g tissue) and it was concluded that, the *A. marmelos* leaves have significant hepatoprotective property [54].

Hypoglycemic and anti-oxidant activity: Aqueous extract of *A. marmelos* leaves (AEAM) tested for hypoglycemic and antioxidant effect 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 evaluated in all the groups at the end of four weeks and found decrease in blood glucose at the end treated with AEAM, but it did not reach the control levels. 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 found to be raised in diabetic rats as to controls. AEAM treated group, found to be decrease in GST as compared to diabetic rats. Unsettled to hypoglycemic and antioxidant properties, AEAM may be useful for permanent cure of diabetes [55,56].

Testicular activity: A study report says that, aqueous extract of leaf of *A. marmelos* at the dose 50 mg/100 g body weight found with remarkable 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 reduced after the treatment of the above extract. Dose did not exhibit any toxicity in liver and kidney. Therefore, it may be assumed that the aqueous extract of leaf of *A. marmelos* has an anti-testicular activity [57].

Cardiotonic activity: Fresh fruit juice of *A. marmelos* plant with

different dilutions was tested for cardiotoxic properties by using isolated frog heart assembly. The test found with better cardiotoxic activity of *A. marmelos* than digoxin. Future research may confirm the reduced toxicity and this advantage of *A. marmelos* [58].

Wound healing activity: Methanolic extract of *A. marmelos* was evaluated for direct and indirect effects in the form of ointment and injection respectively on the excision and the incision wound models in rats. Both the injection and the ointment form found with remarkable 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. This may leads to increase in the tensile strength in the incision model and findings were also compared to standard drug zone [59].

Antistress and adaptogenic activity: SDEAM- standardised dried aqueous extracts of *A. marmelos*, were examined for antistress and adaptogenic activities using Swimming endurance and post-swimming motor function test, Cold swimming endurance test and forced swim test in rats. At primary screening, the extracts found are the presence of phenolics, flavonoids, carbohydrates and volatile oils. At resent investigation, the test extracts when subjected to forced swim model for adaptogenic property rats does not obtained an increase in serum cholesterol and serum triglyceride level, but it was not sustained on subsequent groups. Increases in the swimming endurance time also found remarkably simultaneously with the post motor function like Rota rod falling time and spontaneous motar activity. It also o increases the cold swimming endurance time. Increase in stress level markers may be restricted same extracts [60].

Anti-fertility activity: Aqueous extract of *A. marmelos* leaves was evaluated for the functional concentration on male reproductive system of albino rats. The investigation was carried out in 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 subjected to the aqueous leaf extract daily at 250 mg/kg body wt. and 350 mg/kg body wt., respectively for a period 1 month and 15 days. Decreases in the weights of testis was remarkable, epididymes and seminal vesicle were observed. It was observed that, *Aegle marmelos* found to be effective on male rat reproduction by the affecting sexual behaviour and concentration epididymal sperm [61].

CONCLUSION

Three common forest trees were observed for their traditional uses as well as pharmacological study. *A. indica* or neem is found to known for its traditional uses worldwide. The tree also rich source for bioactive compounds; antibacterial, antiviral, antitumor, anti-malarial, neuro protective, anti-inflammatory, antipyretics, analgesic, antioxidant, skin diseases, hepato-protective, anti-diabetic, anti-ulcer activities. Some report found with therapeutical properties effective for human beings of neem tree by some bioactive compounds, phytochemical analysis of plant extract. *P. pinnata* also found to be rich for its pharmacological uses. All the plant material is well known for their bioactive compounds. Antimicrobial, antiulcer, anti-diarrhocal, anti-plasmodial, antioxidant, anti-hyperammonemic, antiviral, anti-lice, anti-inflammatory activity also been observed. Apart from this it has marked greatly for traditional therapeutical purpose. Another most

important tree *A. marmelos* (Bael); observed with a great medicinal value and traditionally its uses are very common in human society. Use as herbal drugs, this tree found to be highly safe as compare to those chemical drugs. Moreover, on this developing earth, human beings always want to be in 1st row.

Due to this competition level, human beings facing new and complex health issues and getting very familiar to modern and synthetic medicines. Definitely it gives very fast response but creating very high rate of side effect and cost effective day by day. At the same time, herbal (medicinal) products are very less low in price and without side effects. So, it is highly recommended for herbal products as medicines for the growing nation. So many herbal products have been developed and still there are lots of opportunities for proper utilization of this type of great and valuable forest trees. Cultivation of these forest trees in large scale in commercial purpose may create a revolution in the field of herbal products.

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