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Peltophorumpterocarpum – Its ethnobotanical knowledge, phytochemical studies, pharmacological aspects, and future prospects

Rinku R. Choudhary
rinkuc336@gmail.com
University of Mumbai, Mumbai, Maharashtra

Hardika Chauhan
hardika13597@gmail.com
University of Mumbai, Mumbai, Maharashtra

Heena Madkaikar
heenamadkaikar@gmail.com
University of Mumbai, Mumbai, Maharashtra

Tushar Dalvi
tushardalvi74834@gmail.com
University of Mumbai, Mumbai, Maharashtra

Dr. Nisha Shah
nisha.shah@lifesciences.mu.ac.in
University of Mumbai, Mumbai, Maharashtra

ABSTRACT

The present study offers a review stating the detailed findings related to pharmacological and phytochemicals of Peltophorumpterocarpum . Peltophorum, a tropical genus containing eight species, belongs to the legume family (Fabaceae), subfamily Caesalpinioideae. It is considered as one of the significant plant species.Traditionally it was usedto treat skin related problems, insomnia, as various ointment and as a pin killer. It is a source of many kind of chemical constituents like steroids, alkaloids, phenolics, terpenoids, flavanoids, fatty acid and alcohol. Studies have found that extracts of P. pterocarpum exhibit biological activities like antioxidant, antimicrobial, antidiabetics, analgesic, anti inflammatory, anticancer, also a cure of neurodegenerative disease.

Keywords: *Peltophorumpterocarpum, Antioxidant Activity, Anti Inflammatory Activity.*

1. BOTANICAL DESCRIPTION

Peltophorumpterocarpum is a Fabaceae family endemic to tropical southeastern Asia and a widely planted ornamental tree.*P.pterocarpum* is found in the Indo-Malaysian region, as well as the Andaman Islands and Sri Lanka. The leaves arebipinnate and 30-60 cm long. Leaves have 16-20 pinnae, each with 20-40 oval leaflets 8-25 mm long and 4-10 mm wide.Flowers are yellow in colour which are 2.5-4 cm bloom in enormous compound racemes up to 20 cm long. The fruit is a pod which is 5-10 cm long and 2.5 cm wide. It is crimson at first then turns black as it ripens. Fruit contains one to four seeds. After roughly four years, trees begin to bloom. (Jash*et al.*,2013)

P. pterocarpum thrives in tropical areas with a 1-3 month dry season. It is thought that it flourishes best in more or less seasonal environments. With a yearly temperature range of 22-32°C, it thrives in the Philippines. It may be grown at elevations of up to 600 metres, and in rare cases up to 1600 metres, like in Papua New Guinea. Because the species has been planted along seashores, it thrives in sandy soils, although it may also thrive in clay soils with sufficient drainage. Although growth was restricted, *P. Pterocarpum* was found to have survived in a dry zone on a heavy-textured, impermeable soil.(Invasive species Compendium, CABI)

Flowering Season

The main flowering season in India is from March to May, while intermittent blossoming can occur at any time during the year. (Jash *et al.*,2014)

2. DISTRIBUTION

*Peltophorumpterocarpum*is found in the Indo-Malaysian region, as well as the Andaman Islands and Sri Lanka. The plant is locally found in Asia , Malaysia, Australasia ,the Philippines, Thailand, Sri Lanka,Vietnam, Indonesia and Papua New Guinea.

3. TAXONOMIC TREE

Domain: Eukaryota
Kingdom: Plantae
Phylum: Spermatophyta
Subphylum: Angiospermae
Class: Dicotyledonae
Order: Fabales
Family: Fabaceae
Subfamily: Caesalpinioideae
Genus: *Peltophorum*
Species: *Peltophorumpterocarpum*


Fig 1.:*Peltophorumpterocarpum* whole plant **Fig 2.: Stem and Bark of *Peltophorumpterocarpum***

Fig 3.: Leaves and Pod of *Peltophorumpterocarpum*

4. TRADITIONAL APPLICATION

This tree's many components are used to cure a range of maladies, including stomatitis, sleeplessness, skin issues, constipation, and ringworm, and its flower extract is thought to be an excellent sleep inducer and is used to treat insomnia.(Ogbeide*et al.*, 2019, Kim *et al.*, 2020, Htwe *et al.*, 2020).

Bark

The bark of the tree was traditionally used to treat dysentery, as an eye ointment, and as an embrocation for pains and sores.

Flowers

Its flowers have traditionally been used to treat muscle sprains, bruising, swelling, and pain, as well as to slow down digestive disorders and birthing discomfort Abdominal colic, joint and back pain, and ascites are all treated using roots and barks (Htwe *et al*.,2020)

Flowers are used as an astringent to treat or ease intestinal ailments such as postpartum discomfort, sprains, bruises, and swelling, as well as a lotion for eye problems, muscle aches, and sores.(Gorai, 2013)

Leaves

Traditionally leaves were used for decoction to treat skin conditions.

Stem

Stem is used for dysentery, gargles, tooth powder, and muscular pain.

5. NANOPARTICLES

Pai*et al.* created zinc oxide nanoparticles (ZnONPs) for the first time by reducing zinc acetate in an aqueous extract of *P.pterocarpum* leaves. Zinc acetate was converted to ZnONPs by the phenolic chemicals in the leaf extract.(Pai*et al.*,2019)

Application with Nano particles

Bark

The corrosion resistance of *P. pterocarpum* bark extract on mild steel in 1M HCl solution increased as the bark extract content increased. The surface covering of mild steel rises with an increase in inhibitor concentration, according to the weight loss technique. This indicates that there were more inhibitor molecules adsorbed on the mild steel surface. With a rise in inhibitor concentration, both polarisation and electrochemical impedance measurements have indicated higher inhibition effectiveness. The IE of all concentrations was greater than 75 percent, with the best IE (95.89 percent) arriving at a concentration of 1.5 percent. In the presence of inhibitor, an optical microscope picture indicated the lack of corrosion product on the metal surface (Priyadarshani*et al.*, 2015).

Leaves

It was suggested that the produced ZnONPs can be employed as photocatalysts in wastewater dye degradation. The breakdown of methylene blue dye under sunshine irradiation demonstrated ZnONPs' photocatalytic capability. Within 120 minutes, 95 percent of the colour might be degraded.(Pai*et al.*,2019)

The pod extract of *P.pterocarpum* was used to make magnetite (Fe_3O_4) nanoparticles.The nanoparticles adsorption potential was tested for the removal of a methylene blue dye, and it was discovered that the dye was adsorbed of contact time. Furthermore, the produced nanoparticles had a bactericidal effect on *S.epidermis* but not on *E.coli*. So it was suggested that the produced magnetite nanoparticles could play a significant role in nanoremediation.(Dash *et al.*,2019)

6. PHYTOCHEMICALS

Aliphatic alcohols, phenolics , flavonoids, amino acids, fatty acids, terpenoids, alkaloids, and steroids are all reported to be abundant in *P.pterocarpum* (Htwe *et al*.,2020).

Bark

Extraction of four plant components belonging to the triterpenoid and steroid group was achieved by chromatographic separation of the n-hexane extract from the bark of the stem of *P. peltophorum*. (Htwe *et al.*,2020).

Table 1: Phytochemical Constituents of P. Pterocarum Stem Bark (Enechi *et al.*,2016)

Phytochemical	Methanol
Alkaloids	Present
Total phenolics	Present
Saponins	Present
Carbohydrates	Present
Terpenoids	Present
Flavonoids	Present
Tannins	Present
Steroids	Present
Reducing sugars	Present

Flower

Table 2:Phytochemical evaluation of flower of *P. pterocarpum* (Hait *et al*.,2017)

Phytochemical /solvent extracts	Acetone	Chloroform	Ethanol	Ethyl acetate	Methanol	Pet. Ether	Water
Alkaloids	-	-	Present	-	-	-	Present
Carbohydrates	Present	Present	Present	Present	Present	Present	Present
Curcumin	Present	Present	Present	Present	Present	Present	Present
Cardiac Glycosides	Present	-	Present	-	Present	-	-
Flavonoids	Present	-	Present	-	Present	-	-
Oxalates	-	-	-	-	-	-	-
Phenols	Present	-	Present	-	Present	-	-
Phlobatannins	-	-	-	-	-	-	-
Proteins	-	-	-	-	-	-	-
Saponins	-	-	-	-	-	Present	-
Sterols	-	-	-	-	-	-	-
Tannins	Present	-	Present	-	-	-	-

Terpenoids	Present	Present	Present	Present	Present	-	-
Quinones	Present	Present	Present	Present	Present	Present	Present

Flavonoids, which are found in plant parts such as flowers, have a function in metabolism and development in living systems. They also play a protective role in animals and are employed in medicine, particularly flavonol glycosides. Tannins have been shown to prevent the growth of harmful fungus(Ogbeide *et al.*,2019).A study by Vajpai *et al.*,2021 stated that methanolic extract of flower showed presence of alkaloid, phenolic compounds, saponins, flavanoids, proteins and amino acid.

Leaves

Table 3: Phytochemical evaluation of leaves of P. Pterocarpum (Muthukumaran *et al*.,2016)

Phytochemicals	Aqueous methanol	Aqueous	Ethanol	Ethyl acetate
Alkaloids	Present	Absent	Present	Present
Flavonoids	Present	Present	Present	Present
Glycosides	Absent	Absent	Present	Absent
Phenols	Absent	Absent	Present	Present
Phlobatannins	Present	Present	Absent	Absent
Reducing sugars	Present	Present	Present	Present
Steroids	Absent	Absent	Absent	Absent
Saponins	Present	Present	Absent	Absent
Terpenoids	Present	Present	Present	Present

7. ISOLATED COMPOUNDS

Flowers

The bisamide alkaloid (E, E)-terrestribisamide, produced from cinnamic acid, was isolated from the methanolic extract of the flower. It was said to be second most important ingredient after coumarinbergenin (Karunai *et al.*,2013).

Spectroscopic techniques led to the identification of four bioactive compounds . They are known asbergenin,kaempferol, hentriacontanol, and quercetin from the methanol extract of *P. peltophorum* flower (Gorai , 2013).

Table 4 : Compounds isolated from P. Pterocarpum flowers

Isolated phytochemical name	Properties known	Reference
(E, E)-terrestribisamide	antimicrobial,antifungal, antioxidant, and cytotoxic activity	Karunai *et al*.,2013
Bergenin,	Antioxidant, antimicrobial activity	Islam *et al*, 2011, Gorai , 2013, Kunurai*et al*.,2012
Kaempferol		Gorai , 2013
hentriacontanol		Gorai , 2013
quercetin		Gorai , 2013

Leaves

The dichloromethane extract of the leaves showed presence of twelve chemicals. For the first time, a new peltogynoidophioglonin derivative and 2-phenoxychromone with its 3′-O—D-glucoside derivative are discovered. This plant also have nine flavonoid derivatives including peltogynoidophioglonin. Spectroscopic and chemical approaches were used to determine the structures (Polasek*et al.,* 2013).

The methanol extract of *P. pterocarpum* yielded two novel sesquiterpenoids, peltopterins A and peltopterins B , along with fifty-two recognised compounds, whose chemical structures were determined by spectroscopic and mass spectrometric investigations. The compounds isolated which are listed below showed signs of superoxide anion production or elastase release iinhibition (Chiun*et al*., 2019) .

Table 5 : Compounds isolated from P. Pterocarpum leaves (Chiunet al., 2019)

Isolated phytochemical name	Properties known

Peltopterins A	Anti inflammatory activity
Peltopterins B	Anti inflammatory activity
Cyclotirucanenone	Anti inflammatory activity
Kaempferol 3-O-α-l-rhamnoside	Anti inflammatory activity
Quercetin 3-O-α-l-rhamnoside	Anti inflammatory activity
Quercetin 3-O-β-d-glucoside	Anti inflammatory activity
Quercetin 3-O-α-l-arabinofuranoside	Anti inflammatory activity

Stem

Six compounds were identified from an EtOAc extract of *P. Pterocarpum* stems grown in Hanoi, including three phenolics (bergenin, gallic acid, and pyrogallic acid), two triterpenoids (lupeol and betulinic acid), and one flavonolignan (cinchonainIa) (ThiThuy*et al.*,2020).

Spectroscopic methods like1H NMR,IR, 13C NMR,EIMS, and chemical investigations, were used to identify them as Lupenone,Stigmasterol,-Sitosteroland Lupeol. For the first time, lupenone was isolated from the plant (Htwe*et al*.,2020).

Table 6 : Compounds isolated from P. Pterocarpum Stem (Jain et al.,2012)

Isolated phytochemical name	**Properties known**
(+)-Cycloisosativene	Antiseptic, bactericidal, anti-inflammatory, analgesic
(-)-α-Panasinsen	-
2,5,5-Trimethyl-3-hexyn-2-ol	-
Epiglobulol	Antiseptic, cytotoxic
1-Ethyl-4,4-dimethylcyclohex-2-en-1-ol	-
Viridiflorol	Antimicrobial, antifungal
Bicyclogermacrene/Cordinol	Antifungal
Δ-Cedrol	Antioxidant
Jatamansone/Valeranone	Tranquilizing, reducing aggressiveness, anticonvulsant
Valerenal	CNS-depressant, antispasmodic effects
Valerenic acid	CNS-depressant, sleep enhancing,antispasmodic, sedative
Megastigma-4,6e, 8e triene	Antimicrobial, fragrance
Hexadecanoic acid	Antioxidant, nematocide, hypocholesterol-mic , pesticide
9,12-Octadecadienoic acid	Anticarcinogenicantiatherogenic, antioxidant, anti-inflammatory
9-Octadecenoic acid ethyl ester	-
1-Docosene	Antimicrobial, Anticarcinoma
1-Tricosanol	Hepatoprotective
Ethyl docosanoate	Antibody production
Octacosane	Mosquitocidal, antifeedant

n-Hentriacontanol-1	Herbicidal, anti-inflammatory, effect on rheumatism, gout, jaundice, anti-pyretic
1,2-Benzenedicarboxylic acid	Insecticidal, pesticide, antitumor
Di-N-Octyl phthalate	γ-ray absorbers, plasticizers, lubricants
Cholesteryl propanoate	-
Cholesta-4,6-dien-3-ol, benzoate	Antitumor, anti-inflammatory, antioxidant, antiulcerogenic,
Cholest-4-ene-3,6-dione	Antifungal
Stigmast-4-en-3-one	Antiplasmodial, antimicrobial, hypoglycemic, cardioactive
Vitamin E acetate	Antioxidant
Isosativen	Antiseptic, bactericidal, anti-inflammatory, analgesic

7. PHARMACOLOGICAL ACTIVITIES

The plant's different componentshave been shown to be antibacterial, antidiabetic, cardiotonic, antioxidant, anticancerous, hepatoprotective, free radical scavenging, buteryl and acetyl choline esterase inhibitory and estrogenic in studies**.**

Table 7: Pharmacological activities of *P. Pterocarpum*

Part of plant	**Pharmacological activity**
Bark of tree	Antioxidant activity
Flowers	Antimicrobial, antidiabetic activity, antioxidant activity, cytotoxic activity
Leaves	Antimicrobial activity, Anti inflammatory
Stem	Analgesic, anti inflammatory, anti cancer activity
Nanoparticles (leaves)	Antimicrobial activity

Bark of tree

Antioxidant activity

By using a column chromatographic separation technique, bergenin (3.26 percent yield, m.pt 239–241 °C) was recovered from methanol crude extract. From isolated bergeninin, a derivative chemical, bergenin diethyl ether (25 percent yield, m.pt 176–178 °C), was produced. The antioxidant activity of crude extracts and isolated bergenin, as well as its derivatives, ethanol, methanol, and water, was high for crude extracts and isolated bergenin, but the antioxidant activity of bergenin diethyl ether extract was very low. (Patel *et al.*, 2017)

Leaves

Antimicrobial activity

The antibacterial activity of a crude extract of *P.pterocarpum* leaves, were tested in vitro against a number of clinical isolates, including *E. coli, Pseudomonas aeruginosa, Klebsiellaspp, Proteus vulgaris, Proteus mirabilis, Staphylococcus aureus*, and *Candida albicans* The maceration process was used to extract bioactive components from fresh leaves using two solvents: chloroform and methanol. The crude extract yield (percentage) was 2.8 and 4.88, respectively. The diameter of the zone of inhibition was used to evaluate the potency of crude extract (Ogbeide *et al.*,2019).

Anti inflammatory activity

Study by Chiun*et al.*, 2019 showed that six compound studied suppress superoxide anion formation significantly, with inhibitory percentages ranging from 42.3$\pm$ 4.3 to 48.5$\pm$ 1.0 percent at 10 M. In addition, elastase release was inhibited by five compound , with inhibitory percentages ranging from 22.1$\pm$ 5.4 to 32.3$\pm$ 6.8% at 10 M.Inhibition of superoxide generation and enzyme release in infected tissues and organs could have an effect on white cell pro-inflammatory responses directly.As a result, *P. pterocarpum'*s crude extract and refined components have the potential to be developed as novel anti-inflammatory lead medicines (Chiun *et al.*, 2019).

Flowers

Anti microbial activity

Of the twelve pathogens studied against the flower extracts,methanolic flower extract inhibited the gram-positive pathogen *Staphylococcus aureus* the most (12 mm), followed by *Proteus mirabilis* (11 mm), *Enterococcus faecalis* (8 mm), *Enterobacter sp*., and *Bacillus cereus* with 10 mm zones each, and *Serratia marsecens* and *Streptococcus pyogenes*with 9 and 8 mm zones, respectively (Shyamal *et al.,* 2013). Terrestribisamide (Karunai *et al.*,2013) isolated from flowers had moderate antibacterial activity against the strains tested. In vitro, the chemical displayed significant cytotoxicity against the COLO320 colorectal cancer cell line. It had an IC50 value of 50 g/mL and exhibited 83.22 percent activity at a dosage of 200 g/mL (Karunai *et al*.,2013).

Antidiabetic activity

According to Isalm*etal*.,2011 Methanol ethyl acetate (1:9) flower bud extract of *P. pterocarpum*had a substantial impact in decreasing fasting blood glucose levels in alloxan and glucose induced diabetic mice. Flavonoids and steroids have been observed to have a powerful hypoglycemic impact (SaifulIsalm *et al.*,2011)
Antioxidant activity

On TLC analysis, carotenoid was found to be the major compound which stated that methanolic extract of flower of *P. Pterocarpum*have good antioxidant activity (Vajpai *et al.*,2021).

Stem

Analgesic activity

Analgesic activityof n-hexane extract of *P. pterocarpum* stem bark turned into investigated through the usage of acetic acid-brought about writhing model, the usage of indomethacin as a reference drug. In formalin-brought about rat paw oedema check for acute inflammation, the n-hexane extract of *P. pterocarpum* in 50, one hundred and 2 hundred mg/kg frame weight confirmed 26.00%, 27.89% and 32.27% inhibition of oedema respectively after 4hours, that is corresponding to that of trendy drug-aspirin (33.59%) (Annamalai *et al.,* 2018)

Anti-inflammatory activity

Anti-inflammatory activity of n-hexane extract of *P. pterocarpum* stem bark turned into investigated through the usage of formalin-brought about paw licking model, the usage of aspirin as trendy drug. In the extreme toxicity study, mortality turned into found at 500 and 2500 mg/kg frame weight. In the acetic acid brought about writhing check, the n-hexane extract of *P. pterocarpum* (one hundred and 2 hundred mg/kg frame weight) confirmed a massive discount withinside the quantity of writhing with 55.5% and 60% of inhibition respectively (Annamalai *et al*., 2018).

On albino wister rats, a 70 percent ethanolic extract of *P.pterocarpum* leaves was tested for its hepatoprotective activity against paracetamol-induced acute hepatic dam- age. When albino rats were given paracetamol (2mg/kg p.o.) the blood levels of biochemical indicators including SGPt, SGOt, ALP, total bilirubin and directbilirubin, total triglycerides, total cholesterol, and depleted tissue GSH were considerably enhanced, as was lipid peroxidation. This showed that at 100mg/kg and 200mg/kg dosages, the 70 percent ethanolic extract of *P. pterocarpum* leaves considerably lowered the high levels of biochemical markers listed above. The test extract administration also boosted tissue GSH levels and reduced tissue lipid preoxidation considerably. The impact of a 70% ethanolic extract (ELPP) was equivalent to that of a typical silymarin dose of 100 mg/kg. These findings imply that 70 percent ELPP might be useful in the treatment of paracetamol-induced hepatic damage and certain liver disorders (Biswas *et al.*,2010).

The anti-inflammatory effect of an n-hexane extract of *P. pterocarpum* stem bark was examined utilising a formalin-induced paw licking paradigm and aspirin as the control medication. At 500 and 2500 mg/kg body weight, death was recorded in the acute toxicity trail (Kim *et al.*,2020).

Anti-cancer activity

SPP, a stem bark extract from*P.pterocarpum,* substantially prevented LDL oxidation. This plant inhibited cell proliferation and increased caspase 3 and 9 activation in human leukaemia HL-60 and CCRF-SBA cancer cells, dramatically decreasing cell proliferation and raising caspase 3 and 9 activation. In both HL-60 and CCRF-SBA cells, SPP treatment increased Bax protein expression while decreasing Bcl-2 protein expression. These findings suggested that the stem bark of *P.pterocarpum* from Vietnam could be a beneficial LDL anti-oxidant and trigger apoptosis in a human leukaemia cancer cell line (Kim *et al*.,2020).

Bergenin andgallic acid were isolated from the extract. In an in vivo two-stage mouse skin carcinogenesis assay using 7,12-dimethylbenz[a]anthracene (DMBA) as the initiator and TPA as the promoter, bergeninshowed a strong inhibitory effect against EBV-EA activation and skin tumour propagation. In B16 melanoma cells activated with -MSH, both bergeninandgallic acid inhibited melanogenesis. Bergeninshowed a strong inhibitory effect against EBV-EA activation and skin tumour propagation. In -MSH-stimulated B16 melanogenesis, both bergeninandgallic acid inhibited melanogenesis. (Zhang *et al*.,2013)

Neurodegenerative property

The ethanolic extract of *pterocarpum* didn't cause toxicity in neuronally developed IMR32 cells (dIMR32) and solely caused minor caspase-mediated cell death within the cells, per this study. In dIMR32 cells, PTE showed neuroprotection by reducing aerophilous stress and apoptosis caused by H2O2 in a very dose-dependent manner. increased mitochondrial membrane potential (MMP) and dose-dependent attenuation of ROS generation were wont to succeed this neuroprotection. Plant on the opposite hand, didn't diminish proteinase three activity, implying that PTE provides neuroprotection freelance of caspases. pterocarpum was found to be protecting in dIMR32 cells by suppressing the activation of stress triggered p38, attenuating the phosphorylation of ERK1/2, and showing a lowering trend within the activation of JNK, per studies on the MAPKs pathway. The findings counsel that PTE can be investigated additional as a possible preventive medical care for neurodegenerative disorders. PTE was found to be protecting in dIMR32 cells by suppressing the activation of stress triggered p38, attenuating the phosphorylation of ERK1/2, and showing a lowering trend in the activation of JNK, according to studies on the MAPKs pathway. Their findings prompt that this plant could be investigated further as a prophylactic therapy for neuritis.

One of the study by Taiwo,*etal*.,2013 used spectrophotometric and thin layer chromatography (TLC) bioautographic test techniques to investigate the cholinesterase inhibitory activity of *P. pterocarpum* extracts and fractions. The reference used for cholinesterase inhibitors wasEserin. Parts like leaves, root bark, and stem bark methanolic extracts were shown to be active. At a dose of 42.5 g/ml, the stem bark showed highest activity against acetylcholinesterase (AChE). The root bark inhibited both acetylcholinesterase and butyrylcholinesterase (BuChE) at 48.464.47 and 51.772.20, respectively.Leaves showed the values of 47.50+2.41 and 48.91+0.71 against acetylcholinesterase andbutyrylcholinesterase, respectively. As a consequence, their findings show that *P. pterocarpum* inhibits cholinesterase, suggesting that it might be useful in the treatment of memory problems and neurodegenerative diseases like Alzheimer's disease (Taiwo*et al.*, 2013).

Nanoparticles

Anti microbial activity (Leaves)

Partheniumhispidum, Vinga rose, Catheranthusroseus, Phyllanthusamarus, Azadirachtaindica, Jatropacurcas, Tectonagrandis, Ocimum sanctum, and*P.pterocarpum*were used to screen leaf extracts for the synthesis of AgNPs. The antibacterial and antifungal effectiveness of AgNPswere determined using the agar well diffusion technique.AgNPs produced the use of P.pterocarpum leaf extract exhibited excessive balance even after one month, with most absorption spectra of 425 nm, a number of the 9 distinct plant extracts evaluated. When the synthesised AgNPs were tested against *B. subtilis*, the maximum zone of inhibition was found to be 18.04 Â±0.74, and when the concentration of AgNPs was kept at 100 g/ml, the maximum zone of inhibition was found to be 12.34 Â±0.31 (Sukumaran*et al.*,2011).

8. CONCLUSION

The current review includes the most recent information on phytochemical and pharmacological research of *P. Pterocarpum*(flowers, pods, leaves, stem and bark). Lot of phytochemical and bioactive compounds have been isolated from various parts of the plant and have been tested for a number of activities. (E, E)-terrestribisamide(flower), (+)-Cycloisosativene(stem), Valerenic acid(stem), n-Hentriacontanol-1(stem), Cholesta-4,6-dien-3-ol(stem), Stigmast-4-en-3-one(stem), Isosativen(stem) are few of the isolated compounds showing promising effect against variety of activities.A variety of pharmacological activities are reported and further studies would help to develop therapeutical applications . For future research, it is also necessary to isolate and identify novel chemicals from diverse areas of the plant.Nanoparticles using various extracts showed promising results.The above-mentioned activities further support the inclusion of *P. pterocarpum* in pharmaceutical compositions for the treatment of various disorders.Further studies on the plant would be beneficial to transform a common shade plant into a multipurpose plant.

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