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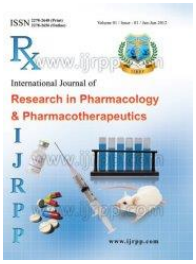

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Antibacterial and antifungal screening of *peltophorumpterocarpum* (DC.) K.Heyne leaf, flower and seed coat extracts

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ABSTRACT

Leaf, flower and seed coat extract of *Peltophorumpterocarpum* (DC.) K.Heyne. family CAESALPINIACEAE was found to havecertaintherapeutical valueswhich may usedto treat stomatitis, insomnia, skin problems, constipation and ring worm also itis known to be a good sleep inducer, bark is used for dysentery. In vitro antibacterial and anti fungal screening of total methanolic extract of *Peltophorumpterocarpum* (DC.) K.Heyne..Against bacteria and fungal by standard well plate method used for determining antibacterial and antifungal activity. The crude extract was dissolved in the solvents to obtain 40mg/ml, 10mg/ml of dilutions. The antimicrobial activities were determined by measuring the diameter of the inhibitory zones in mm using a zone reader. It shows moderate antibacterial and not any antifungal activity, *Peltophorumpterocarpum* (DC.)K.Heyne. can be used as antibacterial activities.

Keywords: *Peltophorumpterocarpum*, Methanolic extract, Antibacterial, Antifungal.

INTRODUCTION

Peltophorumpterocarpum (DC.)K.Heyne.is one the Indian road avenue trees, grow up to 25 Meter tall, and belongs to CAESALPINIACEAE family. The leaves are long, bipinnate with16-20 Pinnae, each having 20-40 oval leaflets 8-25 mm long and 4-10 mm broad. It bears large compound racemes up to 20 cm long, bright yellow flowers, which produces a 10 cm long, & 2.5 -4 cm diameter, rusty copper color pods [1].The fruit is a pod 5-10 cm long and 2.5 cm broad, red at first, ripening black, and containing one to four seeds. Trees begin to flower after about four years. The plant is Native to tropical southeaster Asia and northern Australasia, in Sri Lanka, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Philippines and the island of the coast of Northern Territory, Australia. The plant is also found in different region of India including west Bengal. The wood of the plant is wide variety of uses, including cabinet-making and the foliage is used as a fodder crop.

Different parts of this tree are used to treat many diseases like stomatitis, Insomnia, skin troubles, constipation; ring wormandits flower extract is known to be a good sleep inducer and used in insomnia treatment. Its bark is used as medicine fordysentery, as eye lotion, embrocation for pains and sores. The traditional healers use the leaves in the

form of decocition for treating skin disorders. Stem infusion of *Peltophorumpterocarpum* (DC.) K.Heyne. used in dysentery, for gargles, tooth powder andMuscularpain [2-6]. Flower are used as an astringent to cure or relieve intestinal disorders. After pain at childbirth, sprains, bruises and swelling or as a lotion for eye troubles, Muscular pains and sores [7-10]

Peltophorumpterocarpum (DC.) K.Heyne. is commonly called copper pod of yellow flame tree. It is very attractive tree with its spreading crown of many branches consisting of feathery and gives wonderful sight when the copper-red seedpods cover the tree in profusion. Thus the tree is having high ornamental value and planted as avenue trees. Moreover, the leaves of the Treasure used to feed the goats and the dead branches are collected by village people to Use as fire wood. In terms of biodiversity it serves as good bees, bumble bees. Apart from these it is also having potent medicinal value. Traditionally the bark of the Tree is used to treat wounds. Malaysia using the powdered bark of this plant to treat Psoriasis [11-13].

MATERIALS AND METHODS

Antimicrobial Studies

In vitro antibacterial and anti fungal screening were with total methanolic extract of *Peltophorumpterocarpum* (DC.) K.Heyne. against bacteria and fungal by standard well plate method. Nutrient agar medium was used for determining antibacterial activity [3]. Standard methanol is used for comparison in antibacterial and antifungal. The crude extract was dissolved in sufficient amount the solvents to obtain 40mg/ml, 10mg/ml of dilutions. Methanol were used as control in the experiments. The antimicrobial activities were determined by measuring the diameter of the inhibitory zones in mm using a zone reader, the diameter of the zones of inhibition by the samples were then compared with the diameter of the zone of inhibition produced by the standard antibiotic solutions used [6].

Muller Hinton Agar media was prepared ascetically, poured intoa sterile Petridish and allowed sometime to solidify. Then the culture containing microorganisms was ascetically inoculated into the sterile Petridish by using cotton swab. Using the borer, wells are made and the antibiotic solutions of methanol (50µl) and leaves, flowers and oil extracts of (50µml) were poured. Allow to diffuse by keeping it in refrigerator[9]. Then the Petridis was kept in room temperature till they attain room temperature. These Petridishes were incubated in an incubator for 24hrs. Then the observations were incubated the zones and the depending upon the diameter of the zones the activities antimicrobial agents were found [13].

Antifungal Studies

Potato dextrose agar media was prepared ascetically, collected was poured into a sterile Petri dish and allowed some time to solidify [3]. Then the culture containing microorganism was ascetically inoculated into the sterile Petri dish by using cotton swab. Using the borer, wells are made and the antibiotic solution of fluconasol (50µl) and leaves, flower and oil extract of (50µl) were poured[6].Allow to diffuse by keeping it in refrigerator. Then the Petridis was kept in room temperature till they attain room temperature[9]. These Petridis were incubated in incubator for 24hrs.Then the observations were incubated the zones and the depending upon the diameter of the zones the activity of antifungal agents was found [13].

Materials and Instruments

Sterile Petri plate, Sterile inoculation loop, sterile conical flask, test tube,Non absorbent cotton, Cotton swab, Pressure cooker, Bunsen burner, borer, PDB (Potato dextrose broth),agar, Incubator ,Refrigerator, Autoclave, UV light room, Laminar air flow and Microscope

RESULT AND DISCUSSION

Antibacterial studies

The dilutions like 40mg/ml ,10mg/ml is prepared with total methanolic extract of leaf,flower and seed coat .Antibacterial activity of the total methanolic extract of *Peltophorum pterocarpum* (DC.) K.Heyne**.** was screened and reported. The value are expressesd as mean ± SEM, n=3 in each group.*P<0.05 significant as compared to control, **P<0.05, significant as compared to control, statistical test employed is ANOVA followed by dunnett's t test.

Table : 1 Antibacterial Studies Of *Peltophorum pterocarpum* (DC.) K.Heyne.

Organism	Standard (mm)	Control (mm)	Leaf extract(mm)	Flower extract(mm)	Seed coat(mm)
Gram + ive					
• S A	32.0±0.66	--	21.33±1.33	--	--
• E A	29.33±1.33	--	14.66±0.66	--	--
Gram –ive					
• E C	32.66±0.66	--	--	--	--
• P A	32.33±1.33	--	--	--	--

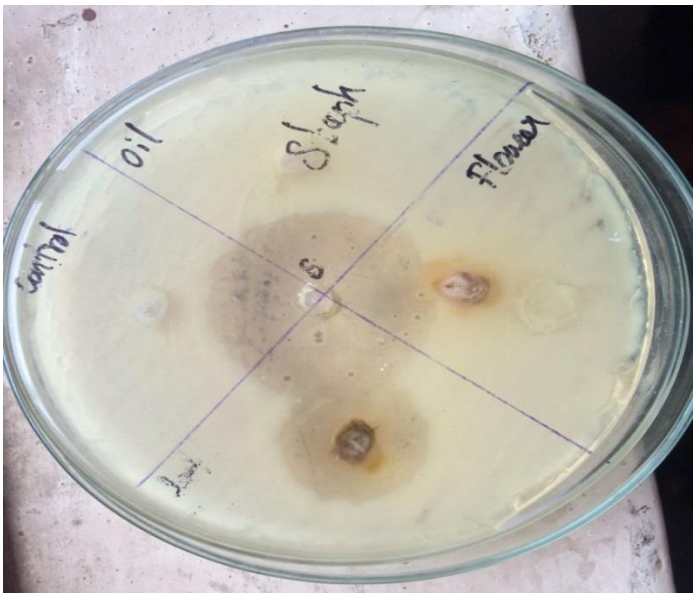

Fig:1 Gram positive bacteria *Staphylococcus aureus*

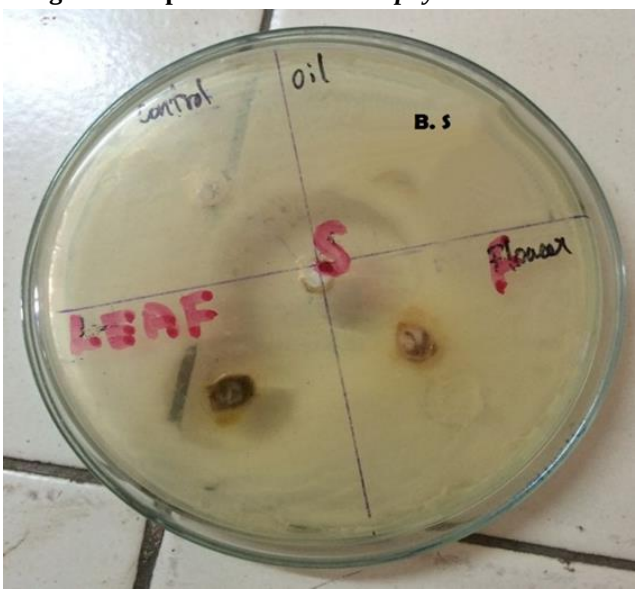

Fig: 2Gram positive bacteria *Bacillus subtills*

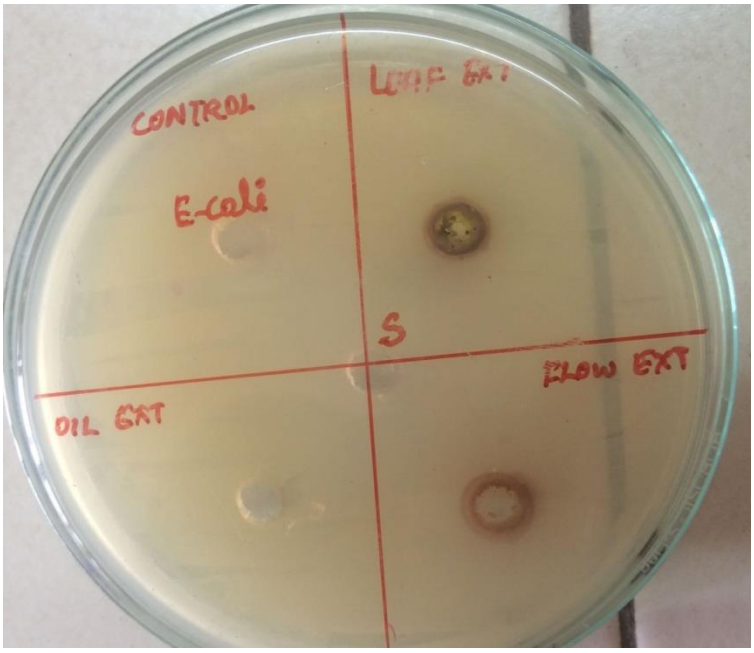

Fig: 3Gram negative *Escherichia coli*

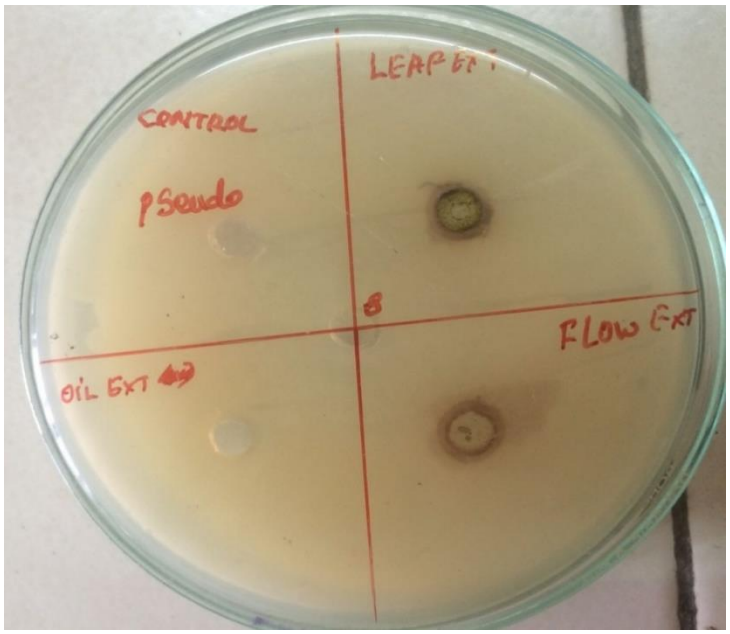

Fig : 4Gram negative *Pseudomonas aeruginosa*

Antifungal Studies

Antifungal activity of the total methanolic extract of *Peltophorumpterocarpum*was screened and reported. The value are expressesd as mean ± SEM, n=3 in each group. $^{*}P<0.05$ significant as compared to control, $^{**}P<0.05$, significant as compared to control, statistical test employed is ANOVA followed by dunnett's t test.

Table : 2Antifungal studies of *Peltophorum pterocarpum* (DC.)K.Heyne

Organism	Standard (mm)	Control (mm)	Leaf extract (mm)	Flower Extract (mm)	Seed coat extract (mm)
• AN	16.33±0.33	--	--	--	--
• CA	20.6±1.33	--	--	--	--

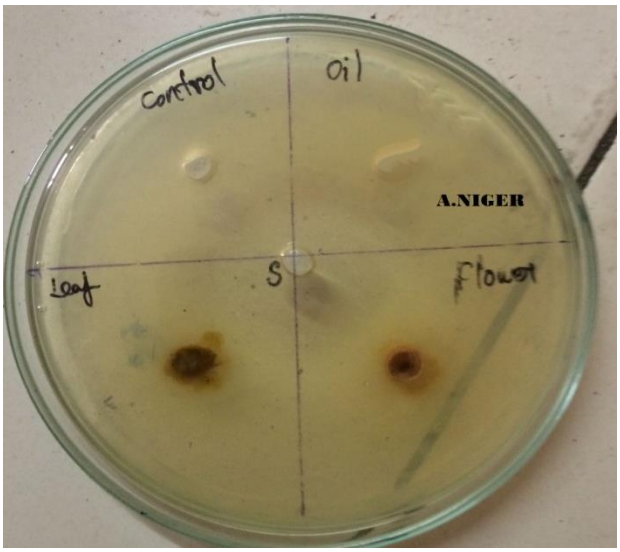

Fig:5 *Aspergilliusniger*

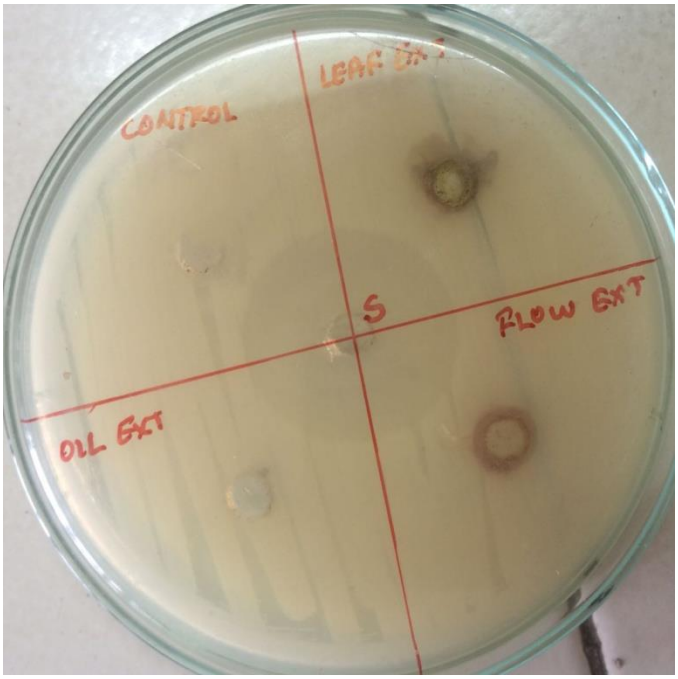

Fig: 6 *Candida albicans*

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