

Antibacterial and antifungal activities of *Pinus longifolia*, Roxb

EDWIN E*, E. SHEEJA, S. GUPTA AND S. JEGANATHAN¹

Department of Pharmacognosy, B.R. Nahata college of Pharmacy, Mandsaur-458001, M.P

¹ Department of Pharmaceutical sciences, Dr. Harisingh Gour University, Sagar, M.P.

(Accepted : Decmeber, 2005)

SUMMARY

According to the local traditional practitioners in Mandsaur, M.P, the pastes of plant *Pinus longifolia*, Roxb. (Pinaceae) is being used to treat cuts and wounds. To validate the tribal claim, the ethanol and water extracts of leaves of *Pinus longifolia*, Roxb. were tested for its antimicrobial and antifungal activity. The anti microbial and antifungal activity of extracts were tested by agar well diffusion method. The microbes used to determine antimicrobial activity are *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 25973), and *Pseudomonas aureginosa* (ATCC 27853), for antifungal activity the following microbes were used *Candida albicans* (ATCC10231) and *Aspergillus niger* (ATCC 16404). Both the extracts were effective against the microbes and comparatively the ethanolic extract exhibited very good activity. This study supports the tribal claim.

Key words : *Pinus longifolia*, Pinaceae, antifungal, anti bacterial

The plant *Pinus longifolia*, Roxb. (Pinaceae) commonly known as Long-leaved Pine, is used as carminative, stimulant, diaphoretic, etc Nadkarni, (2000). The reported main constituent is oleo-resins and a volatile oil which is obtained from it Kokate *et al.*, (2002). The traditional medical practitioners in Mandsaur, M.P uses the paste of the leaves for healing wounds. In this direction, our efforts were directed to study the antibacterial and antifungal activity of leaves of *Pinus longifolia*.

pressure. The percentage yields of ethanol and water extracts were found to be 6.6 % w/w and 5.4 % w/w respectively. The anti bacterial and antifungal activity of extracts was tested by agar well diffusion method Selvamani and Latha, (2004) Zhu *et al.*, (2005). The microbes used to determine antimicrobial activity are *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 25973), *Pseudomonas aureginosa* (ATCC 27853), and for antifungal activity the following microbes were used *Candida*

Table 1 : Anti bacterial and anti fungal activity of Leaves of *Pinus longifolia*, Roxb

Test Organisms	Zone of inhibition in mm			
	Ethanol extract 5 mg/ml	Water extract 5 mg/ml	Ciprox 100 mg/ml	Nystatin 100 mg/ml
<i>Escherichia coli</i> (ATCC 25922)	10±3	8±2	14±3	—
<i>Staphylococcus aureus</i> (ATCC 25973)	9±2	7±2	13±2	—
<i>Pseudomonas aureginosa</i> (ATCC 27853)	10±2	8±2	14±3	—
<i>Candida albicans</i> (ATCC10231)	10±3	6±1	—	13±3
<i>Aspergillus niger</i> (ATCC 16404)	9±2	8±2	—	12±3

Values are expressed in mean ± SEM, (n=3)

MATERIALS AND METHODS

Fresh leaves of the plant were collected in the month of August and authenticated by the Botanist, KNK College of Horticulture, Mandsaur. The collected leaves were shade dried for one week, powdered and packed in soxhlet apparatus. Extraction was done by continuous hot percolation method using the solvents, ethanol and water for 72 hrs each. The extracts were evaporated under reduced

albicans (ATCC10231) and *Aspergillus niger* (ATCC 16404). The microbes were procured from the Department of Microbiology, Department of Pharmaceutical sciences, Sagar, India.

After determining the MIC, 5 mg/ml of ethanol and water extracts of leaves were chosen. Ciprofloxacin 100 µg/ml was used as the standard for antibacterial activity and Nystatin 100 µg/ml was used as the standard for antifungal

*Author for correspondence