

SCREENING OF THE ANTIBACTERIAL ACTIVITIES OF THE CRUDE EXTRACTS OF THE LICHEN, *Parmotrema tinctorum* AGAINST GRAM POSITIVE AND NEGATIVE PATHOGENIC BACTERIA

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Among the global health problems in the 21st century, antibiotic resistance is considered as an exigent challenge emerged mainly due to the indiscriminate use of antibiotics during various infectious diseases. Therefore, searching novel antimicrobial agents from various alternative sources in the nature including ignored species such as lichens has become important. This study investigated the *in-vitro* antimicrobial potential of *Parmotrema tinctorum* against four medically important gram positive and negative bacterial strains. Ethanol, hexane and aqueous extracts of the lichen were prepared according to standard protocols. *Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922) and *Klebsiella pneumoniae* (ATCC 700603) were used as the test organisms. Antibacterial activities were screened by agar disc diffusion assay. Minimum inhibitory concentration (MIC) was obtained by broth micro-dilution method with cefotaxime intravenous solution as the positive control. Only ethanol and hexane extracts were active against *S. aureus*. None of the extracts were active against *P. aeruginosa*, *E. coli* and *K. pneumoniae*. Ethanol extract at 300 mg/ml concentration exhibited an inhibition zone of 9.4 ± 0.1 mm, while hexane extract showed 7.7 ± 0.2 , 7.5 ± 0.1 and 6.8 ± 0.3 mm zone diameters for concentrations at 300, 30 and 3 mg/ml respectively. The MIC values for both ethanol and hexane extracts were 2.4 mg/ml against *S. aureus*. Both ethanol and hexane extracts of *P. tinctorum* have similar antibacterial potential against the gram positive bacterium, *S. aureus*. Further studies are required to fractionate and identify the active constituents which exhibited the antibacterial activity.

Keywords: *Parmotrema tinctorum*, Antimicrobial, Ethanol, Hexane, Aqueous