

Screening of Microorganisms from Thano Reserve Forest, Dehradun, India for Antimicrobial Compounds

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Abstract—Emergence of drug resistant pathogens has become a challenge in the management of microbial infections. For many years natural products have been recognized as sources of therapeutic agents and other molecules due to their vast structural diversity. Possibilities of new molecules being high in unexplored habitats, in this study soil samples have been collected from the unstudied Thano Reserve forest, Dehradun, India. By using selective isolation procedures, bacteria and fungi were isolated in Nutrient Agar medium, Glucose Yeast Extract and Potato Dextrose Agar. Isolates were further screened for the production of antimicrobial compounds. NA yielded 39 distinct bacterial isolates, from which 53.84% isolates showed antimicrobial activity against Gram positive bacteria, 51.28 % against Gram negative bacteria, 38.46% broad spectrum activity and 35.89% isolates both antibacterial and antifungal activity. Amongst the 29 isolates recovered from GYE, 89.65% isolates showed antimicrobial activity against Gram positive bacteria, 86.20% against Gram negative bacteria, 86.20% broad spectrum activity and 82.75% isolates showed both antibacterial and antifungal activity. It was observed that the isolates also produced industrially important enzymes such as catalase, protease, lipase, amylase and cellulase and can be of potential use in further studies focussing on the utility of these enzymes for food processing and other applications. Further studies can confirm the taxonomic novelty of the isolates and characteristics of the antimicrobial compounds produced.