

CHAPTER 6

Anti-bacterial activity of selected sand dune floras of Odisha

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ABSTRACT

*Morphology of coastal area shows the natural structure which acts as a shield or defence system by absorbing energy from wave, wind and tide action. This defence system play a key role in protecting the coastal environment from erosion and flooding. Coastal dune floras helps in dune stabilization and restoration as well as act as a natural purifier for coastline. The sand dune comprises of many types of floras with different habits. These floras have a great stress tolerance capabilities and more or less good soil binding capacity. However the studies on coastal dunes are limited and kept in abeyance due to lack of exploration from scientific community for its medicinal or beneficial properties. Due to developmental work and constant anthropogenic activities along the coastal areas these, the coastal sand dune floras and its associated vegetation are rapidly eliminated. With this the traditional knowledge on coastal sand dune flora are also gradually vanishing. A survey was made during the month of October - December, 2019 and a total of 54 plant species were recorded from 33 different families. Out of 54 plant species studied, *Hydrophylax maritima* was selected for experimental work and collected from the coastal sand dunes. For the experiment, the collected plant materials were made dried and powdered. The plant extract was obtained by the soxhlet method which was followed by phytochemical screening, TLC and antibacterial activities against gram positive bacteria (*Streptococcus mutans*). The phytochemical assay and TLC were carried out to identify the bioactive compounds and secondary metabolites present in the plant extract. The phytochemical screening reveals the presence of saponin, tannins and flavonoids in aqueous extract. The observed phytochemical and anti-bacterial activities showed the pharmacological potential of *Hydrophylax maritime*.*

Keywords: Coastal sand dune flora, medicinal uses, bioactive compounds, antibacterial activity.

6.1 INTRODUCTION

The coastal zone is considered very dynamic in nature as it is the region where land, ocean and atmosphere transact with each other. India has a long coast line of about 7500 km which is characterized by various landforms and ecosystem.