

Antimicrobial Potential of *Pterocarpus Santalinus*

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Abstract

Pterocarpus santalinus, commonly known as red sandalwood, is a medicinally important plant traditionally used in various systems of medicine for the management of several ailments. The present study focuses on evaluating the antimicrobial potential of *Pterocarpus santalinus* and exploring its possible therapeutic significance. Phytochemicals present in the plant, including flavonoids, tannins, phenolic compounds, terpenoids, and other bioactive constituents, are considered responsible for its diverse biological activities. Extracts prepared from the plant material using suitable solvents can be investigated against selected Gram-positive and Gram-negative bacteria, as well as pathogenic fungi, using standard microbiological methods such as the agar well diffusion or disc diffusion technique. The antimicrobial activity may be assessed by measuring zones of inhibition and determining the minimum inhibitory concentration (MIC) where appropriate. The presence of secondary metabolites may contribute to inhibition of microbial growth through mechanisms such as disruption of microbial cell membranes, interference with essential metabolic processes, and inhibition of cellular enzymes. The findings of such investigations can provide scientific support for the traditional medicinal use of *P. santalinus* and may help identify it as a potential source of naturally derived antimicrobial agents. Further phytochemical characterization, toxicity assessment, and in-vivo studies are required to establish its efficacy and safety and to determine its potential application in pharmaceutical and healthcare products.

Keywords: *Pterocarpus santalinus*, red sandalwood, antimicrobial activity, phytochemicals, antibacterial activity, antifungal activity, medicinal plant, plant extracts, natural antimicrobial agents.

