

# PRELIMINARY SCREENING OF COELOGYNE OVALIS LINDL. (ORCHIDACEAE) FOR ANTIMICROBIAL ACTIVITY AGAINST STAPHYLOCOCCUS AUREUS

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*Coelogyne* (Orchidaceae) comprises about 200 species distributed throughout southeast Asia with main centers of diversity in Borneo, Sumatra and the Himalayas. Most species are epiphytes and occur in primary forests (Gravendeel, 2000). Many preparations derived from orchid plants are used as diuretic, antirheumatic, anti-inflammatory, anticarcinogenic, hypoglycemic activities, antimicrobial, anticonvulsive, relaxation, neuroprotective, and antiviral agents and remedies in scorpion sting and snake bite (Hossain, 2011). Though *Coelogyne* is regarded as a relatively species-rich genus, few studies have been done regarding medicinal properties of these orchids. Therefore, the present study was carried out to determine antimicrobial activity of different extracts of *Coelogyne ovalis* obtained from leaves and pseudobulbs against *Staphylococcus aureus* (ATCC 25923).

The fully expanded new leaves and pseudobulbs of *C. ovalis* plants, cultivated under glasshouse conditions, were sampled at M.M. Gryshko National Botanical Garden (NBG), NAS of Ukraine. Freshly crushed leaves and pseudobulbs were washed, weighted, and homogenized in 96% ethanol, methanol, and ethyl acetate (in proportion 1:19) at room temperature. Antimicrobial activity was determined using the agar disk diffusion assay (Bauer et al., 1966).

The ethanolic extract of *C. ovalis* leaves showed strong activity against *S. aureus* (27 mm of inhibition zone diameter), while ethanolic extract from pseudobulbs revealed less activity (22 mm). Methanolic and ethyl acetate extracts obtained from *C. ovalis* leaves also showed appreciable antimicrobial activity (32 mm and 35 mm, respectively), whereas those extracts from pseudobulbs revealed no antibacterial activity against *S. aureus*. The few variations in results between the disc diffusion can be due to the different susceptibility of the bacterium to the plant extract, the rate of growth of bacteria, solvents used to extract the plant compounds and the rate of plant extract diffusion (Ntombezingi, 2009).

From the findings of this study, it can be concluded that the selected medicinal plants have great potential as antimicrobial agents against *S. aureus*. Furthermore, in a few cases these plant extracts were active against bacteria under very low concentrations and various solvents and thus minimizing the possible toxic effects. Hence, this study would lead to the development of some biologically active compounds which can be employed in the formulation of antimicrobial agents.