

Determination of Minimum Inhibitory Concentration (MIC) of *Syzygium aromaticum* oil against Multiresistant Bacteria and *Candida* using Microtiter Plate Assay.

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Abstract

Syzygium aromaticum (Family: Myrtaceae) is a medicinal plant commonly known as clove. In traditional medicine, the dried flower buds are used along with other ingredients in the treatment. Clove oil was found to possess inhibitory activity against *Candida albicans*. The present study was to determine the Minimum Inhibitory Concentration (MIC) of the oil of *S. aromaticum* against a spectrum of microorganisms including sensitive standard organisms, Gram positive cocci, Multiresistant Gram negative bacilli and *Candida* species. The oil of *S. aromaticum* was obtained using the Clevenger apparatus. MIC value was determined using the microtiter broth dilution method. Serial dilutions of the oil of *S. aromaticum* were made in a 96 well microtiter plate with Brain Heart Infusion (BHI) broth. Ten microliter of liquid bacterial culture (\approx McFarland standard 0.5) was added to all the wells. The plates were incubated at 37°C for 24 h. After overnight incubation, growth (lack of inhibition) was noted by change of turbidity with BHI. The lowest concentration of oil at which no turbidity was recorded as the MIC of the oil for the organisms. The MICs of oil against the tested organism were *S aureus* NCTC 657 0.0050 μ l/ml, *P aeruginosa* NCTC10662 - 0.0400 μ l/ml, *E coli* NCTC105 0.0100 μ l/ml, methicillin resistant *S aureus* (MRSA) - range (0.0100- 0.0400) μ l/ml, multiresistant Gram negative bacilli - range (0.0750- 0.1500) μ l/ml and *Candida* sp 8) - 0.0045 μ l/ml. This plant oil showed inhibitory activity against all tested species including MRSA, multiresistant coliforms including ESBL producers and *Candida* spp. The lowest MIC of 0.0045 μ l/ml was shown against *Candida* sp

Key words: Minimum Inhibitory Concentration, *Syzygium aromaticum* oil, microtiter