



**IN VITRO SYNERGISTIC ACTIVITY OF *Melaleuca alternifolia* (TEA TREE) OIL and *Rosmarinus officinalis* (ROSEMARY) OIL
AGAINST *Candida albicans***

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ABSTRACT

The increasing reports of drug-resistant *Candida* species to some conventional treatments like fluconazole prompted the development of alternative cure like some plants for its proven safety and effectiveness. This study was conducted to investigate the potential synergism or possible antagonism of tea tree oil and rosemary oil against *Candida albicans*. A stock solution of the tea tree oil and rosemary oil diluted in DMSO (1:1) was made starting from a concentration of 8% to 0.000001% using serial two-fold dilution. The MIC of the oils alone was carried out in Saboraud dextrose broth using tube dilution method and was defined as the lowest concentration of compound that inhibits fungi after 24 hours. After the determination of MIC, check board titer test was performed. A 96-well sterile microtiter was used to determine the synergistic activity of tea tree and rosemary oil. Results show that the MIC of tea tree oil was observed at 0.25% concentration while the rosemary oil was seen at 0.50% concentration of the oil. On the other hand, the FIC of tea tree oil was found at 0.000004% concentration while the FIC of Rosemary oil at 0.000002% concentration. The sum of the FICs of the two essential oils was calculated as the FIC index which was computed to be 0.000006%. Because the FICI of the two oils were found at less than 0.5, it was interpreted as highly synergistic. The study revealed that tea tree oil and rosemary oil will have a more powerful effect if they are used in combination.



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