

IN VITRO ANTIBACTERIAL, IN VIVO IMMUNOMODULATORY AND SAFETY PROPERTIES OF ETHYL ACETATE LEAF EXTRACT OF *Ocimum basilicum*

Staphylococcus aureus, MRSA, *P. aeruginosa* and *E. coli* are common bacterial pathogens. Multi-drug resistant strains of these pathogens have led to a demand for new treatment options. *O. basilicum* is an important medicinal plant and has been shown to have therapeutic values. However, there was need to validate its safety and immune modulation potential. The aim of this study was to determine the in vivo immunomodulatory, safety and in vitro antibacterial effects of *O. basilicum*. This was a laboratory-based experimental study. Different concentrations of the ethyl acetate leaf extract were used for testing antibacterial activity by the disc diffusion method followed by determination of MIC and MBC by broth dilution. Phytochemical and elemental properties of the extract were assayed by GC-MS and atomic absorbance spectrophotometry. For immune modulation concentrations, 300mg/kgbw, 200mg/kgbw and 100mg/kgbw were used while RRBC's were used as the antigen. Administration of mice with 300mg/kgbw, 548mg/kgbw and 1000 mg/kgbw for 28 days was done to determine their body weight, organ weight, biochemical and hematological profiles for safety evaluation. The highest activity was on *P. aeruginosa* (27.00±2.00mm) while the lowest activity was on the isolate of *S. aureus* (17.33±0.58mm). There was a dose dependent effect on the humoral antibody responses. The extract exhibited an effect on neutrophil adhesion and a dose dependent effect on phagocytic index which wasn't significantly different among the extract concentrations. In vivo safety tests revealed that the 1000mg/kgbw concentration significantly lowered PLT counts (556.00±76.00 10³/μl) while having no effect on other blood indices. The extract was also proven safe on the liver and kidney. The ethyl acetate leaf extract of *O. basilicum* had antibacterial, immune modulation effects and was safe for in vivo use, therefore, this plant could be harnessed in efforts to come up with alternative and complementary therapies.

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Track Classification: The Role Biotechnology & Molecular Sciences in Addressing NCDs and Infectious Diseases