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Biochemical studies on some medicinal plants in Africa

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ABSTRACT

This investigation was conducted to evaluate the chemical composition and identify the predominant components of the essential oils profile of rosemary (*Rosmarinus officinalis* L.) leaves and black cumin (*Nigella sativa* L.) seeds as well as evaluate the their antimicrobial activity against all tested strains of microorganisms by the agar diffusion method. The results indicated that the proximate analysis of rosemary leaves achieved significantly the highest values of ash, crude fiber, total phenols, and essential oil, whereas black cumin seeds attained significantly the highest values of moisture, lipid, crude protein and total carbohydrates. Twenty essential oil components of rosemary leaves were identified. The main components of rosemary essential oil were α -pinene (17.31%) and 1.8 cimeole (13.69%). On the other hand, eighteen essential oil components of black cumin seeds were identified. The predominant components of black cumin essential oil were Thymoquinone (38.43%) and P-cymene (21.18%). Concerning to antimicrobial activity, the results showed that all various concentrations of rosemary and black cumin essential oils possess significant inhibitory effect on the microorganisms strains used in this study. Rosemary is significantly the most effective essential oil against all tested strains microorganisms compared to black cumin essential oil. The higher concentration of the essential oil has the greatest effect on growth inhibition compared to other concentrations.

From the previous results, it can be recommended to use these essential oils for its potential source of active ingredients for food preservatives.

Keywords: Essential oils, rosemary, black cumin, moisture, ash, crude protein, total carbohydrates, crude fiber, total phenols, antimicrobial activity

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