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Phytochemical studies of selected African medicinal plants

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Traditional medicine is a cultural practice with a long history in Africa and in South Africa it involves the use of approximately 3000 plants, out of a national biodiversity represented by about 30000 higher plant species. For most of these, there is very little information about their phytochemical constituents, given that the therapeutic value of these plans is known to reside in their phytochemical composition. Furthermore, for most of these plants, some of which are on the open market, there are still no strict quality control reference data, which verifies the phytochemical profile of a particular plant sample. Hence the purpose of this study is to broaden the knowledge on the phytochemical composition of medicinal plants, information which is expected to facilitate an understanding of their mode of action, in terms of therapy and toxicity. Some medicinal plant species from South Africa and other African countries were collected. Dried material samples were subjected to extraction using water as well as a variety of organic solvents followed by chromatographic fractionation of the extracts obtained. Isolated compounds were examined for their chemical structural features with the aid of nuclear magnetic resonance and mass spectroscopy. Some of the crude extracts and purified compounds were also studied for biological activity such as antioxidant activity, cytotoxicity (using the brine shrimp lethality bioassay), for antimicrobial activity against Gram-negative and Gram positive bacteria as well as fungal species and enzyme inhibition properties. Spectroscopic studies led to the identification of compounds belonging to the following classes: flavonoids and terpenoid and flavonoid glycosides. Some extracts and isolated compounds displayed a broad spectrum of biological activities.

Biography

Wilfred T Mabusela has completed his PhD from the University of Cape Town in South Africa, followed by two years of Postdoctoral studies at the same institution, which extended his doctoral work on structural studies of plant polysaccharides. He has published more than 30 papers in reputable journals.

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