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Bio-prospecting South African medicinal plants for antiprotozoal lead compounds

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Vector-borne infectious diseases remain the main public health problem affecting many people in tropical and subtropical regions. Chemotherapy is still one of the fundamental measures used in the control and treatment of protozoal diseases; however, the emergence of resistant strains is compromising its effectiveness. The main aim of this study was to bio-prospect South African indigenous plant species for novel antiprotozoal plant products. Twenty (20) plant species were collected, extracted in dichloromethane: 50% methanol (1:1) and then separated into polar and non-polar fractions. The acquired crude extracts were tested on *Trypanosoma brucei rhodesiense, T. cruzi, Leishmania donovani* and *Plasmodium falciparum*. The current study is the first scientific account on the significant antileishmanial efficacy (IC_{50}≤5 µg/ml) of *Bridelia mollis, Vangueria infausta* subsp. *infausta, Syzygium cordatum* and *Xylopia parviflora*, as well as high antitrypanosomal activity of *Albizia versicolor*. 10 plant extracts exhibited significant *in vitro* antiplasmodial activity, with *Tabernaemontana elegans* and *V. infausta* subsp. infausta being the best samples. Application of supervised Orthogonal Projections to Latent Structures–Discriminant Analysis (OPLS-DA) on the 1H NMR profiles resulted in a discrimination pattern that could be correlated to the observed antimalarial bioactivity. Further phytochemical analyses let to the isolation of dregamine and tabernaemontana from *T. elegans* as well as friedelin and morindolide from *V. infausta* subsp. *infausta*. The study demonstrated the potential of discovering novel antiprotozoal scaffolds from medicinal plants.

Biography

Bapela Johanna has her research area mainly focused on bio-prospecting indigenous plant species for antiprotozoal chemotherapeutic agents at University of Pretoria in South Africa.

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