

Publication

Anti-protozoal activity of aporphine and protoberberine alkaloids from *Annickia kummeriae* (Engl. & Diels) Setten & Maas (Annonaceae)

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BACKGROUND: Malaria, trypanosomiasis and leishmaniasis have an overwhelming impact in the poorest countries in the world due to their prevalence, virulence and drug resistance ability. Currently, there is inadequate armory of drugs for the treatment of malaria, trypanosomiasis and leishmaniasis. This underscores the continuing need for the discovery and development of new anti-protozoal drugs. Consequently, there is an urgent need for research aimed at the discovery and development of new effective and safe anti-plasmodial, anti-trypanosomal and anti-leishmanial drugs. **METHODS:** Bioassay-guided chromatographic fractionation was employed for the isolation and purification of antiprotozoal alkaloids. **RESULTS:** The methanol extract from the leaves of *Annickia kummeriae* from Tanzania exhibited a strong anti-plasmodial activity against the multi-drug resistant *Plasmodium falciparum* K1 strain (IC₅₀ 0.12 +/- 0.01 mug/ml, selectivity index (SI) of 250, moderate activity against *Trypanosoma brucei* rhodesiense STIB 900 strain (IC₅₀ 2.50 +/- 0.19 mug/ml, SI 12) and mild activity against *Leishmania donovani* axenic MHOM-ET-67/82 strain (IC₅₀ 9.25 +/- 0.54 mug/ml, SI 3.2). Bioassay-guided chromatographic fractionation led to the isolation of four pure alkaloids, lysicamine (1), trivalvone (2), palmatine (3), jatrorrhizine (4) and two sets of mixtures of jatrorrhizine (4) with columbamine (5) and palmatine (3) with (-)-tetrahydropalmatine (6). The alkaloids showed low cytotoxicity activity (CC₅₀ 30 - >90 mug/ml), strong to moderate anti-plasmodial activity (IC₅₀ 0.08 +/- 0

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