

2nd International Congress on **Bacteriology & Infectious Diseases**

November 17-19, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Evaluation of *in vitro* and *in vivo* antitrypanosomal activity of aqueous and methanol leaf extracts of *Clutia abyssinica* (Euphorbiaceae) and *Verbascum sinaiticum* (Scrophulariaceae) against *Trypanosoma congolense* field isolate

Ermias Mergia Terefe¹, Workneh Shibeshi², Getachew Terefe² and Tilahun Teklehaymanot⁴

¹Rift Valley University College, Ethiopia

²Addis Ababa University, Ethiopia

Aqueous and methanol leaf extracts of *C. abyssinica* and *V. sinaiticum* were investigated for the presence of secondary metabolites, their *in vitro* and *in vivo* activity against *Trypanosoma congolense*, the main causative agent of African animal trypanosomiasis in Sub-Saharan Africa and Ethiopia. The *in vitro* assay was carried out by monitoring test concentrations of 4, 2, 1, 0.4 and 0.2 mg/ml for cessation or reduction in motility of trypanosomes followed by monitoring for loss of infectivity to mice. The *in vivo* antitrypanosomal efficacy of the extracts was evaluated in Swiss albino mice infected with *T. congolense* field isolate. The leaf extracts were administered 12 days post-infection at peak parasitaemia level of $\sim 10^8$ trypanosomes/ml at doses of 100, 200 and 400 mg/kg by intraperitoneal injection once daily for 7 days. Parasitaemia, packed cell volume (PCV), mean survival time and change in body weight were used as indices for monitoring the efficacy of the extracts by comparing with the positive control: 28 mg/kg dose of diminazene aceturate and negative control: 2% tween 80 treated groups. Phytochemical screening revealed presence of alkaloids, anthraquinones, flavonoids, glycosides, phenolic compounds, saponins, steroids, terpenes and tannins. An appreciable *in vitro* activity was attained by the methanol extract of *C. abyssinica* at 4 mg/ml concentration which ceased motility of trypanosomes within 30 min and which caused loss of infectivity of trypanosomes to mice, which remained aparasitaemic for 21 days after the inoculation of the *in vitro* mixtures. The extracts had a lethal dose greater than 2000 mg/kg and there were no evidences of acute toxicity at the doses tested. Highly significant ($p < 0.001$) reduction in pre-treatment parasitaemia by 3.91% (7.38 ± 0.18) and increase in PCV by 1.12% (48.66 ± 0.20) was noticed in animals treated by the methanol leaf extract of *C. abyssinica* at dose of 400 mg/kg; while body weight improvement by 1.67% (22.54 ± 0.28) and mean survival time of 40.20 ± 0.37 days was seen in the group treated by 400 mg/kg methanol leaf extract of *V. sinaiticum*. In general, the results obtained suggest ethno-pharmacological usefulness of these plants and necessitate further studies to be carried on isolated active substances from these plants.

getachew_terefe@yahoo.com