

In vitro activity of Piper sarmentosum ethanol leaf extract against Toxoplasma gondii tachyzoites

ABSTRACT

Purpose: To evaluate the activity of the ethanol leaf extract of *Piper sarmentosum* against toxoplasmosis. **Methods:** An in vitro anti-*Toxoplasma* study was conducted using Vero cells as a host for *T. gondii*. Clindamycin used as the reference drug. Light microscopy technique was used to study the in situ antiparasitic activity of *T. gondii*. Non-toxic concentrations of the ethanol extract for Vero cells were determined by methyl thiazolyl tetrazolium (MTT) cell proliferation. The presence of *Toxoplasma gondii* was observed by Giemsa staining. **Results:** The results showed that significant ($p < 0.05$) anti-toxoplasma activity of the ethanol extract, though lower than that of clindamycin (control drug), was achieved, with half-maximal inhibitory concentration (IC₅₀) of 12.4 and 7.2 $\mu\text{g/mL}$ for the extract and reference drug, respectively. After 24 hours of exposure to the extract, the inoculated Vero cells showed lower parasitemia and no remarkable morphological changes. **Conclusion:** The findings demonstrate that the ethanol extract of *P. sarmentosum* leaves are active against toxoplasmosis in vitro. However, further studies are required to determine the therapeutic significance of these findings in vivo.

Keyword: *Toxoplasma gondii*; *Piper sarmentosum*; Vero cell; Toxoplasmosis; Antiparasitic