Anthelmintic activity of *Piper sylvaticum* Roxb. (Family: Piperaceae): *In Vitro* and *In Silico* studies

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Abstract

The present study was conducted to investigate the anthelmintic activity of methanol extract of *Piper sylvaticum* (MEPSS) in animal model followed by molecular docking analysis.

Anthelmintic activity was determined by an aquarium worm (Tubifex tubifex) was used for the test due to its physiological and anatomical similarity with an intestinal worm,i.e., Annelida. Then, molecular docking study was performed to identify compounds having maximum activity against TUBULIN-COLCHICINE enzymes by using Schrödinger-Maestro v 10.1 docking fitness.

A preliminary phytochemical analysis of MEPSS revealed that it contained alkaloids, carbohydrates, flavonoids, tannins, and saponins. MEPSS exhibited a dose-dependent and statistically significant anthelmintic activity aquarium worm (Tubifex tubifex) was used for the test due to its physiological and anatomical similarity with an intestinal worm,i.e., Annelida. Besides, our docking study shows that Piperine has the best fitness score of -6.22 kj/mol with TUBULIN-COLCHICINE enzyme among three major compounds of *Piper sylvaticum.*

Results of the present study confirmed potential anthelmintic activity of *Piper sylvaticum* stem extract in both *in vitro* and *in silico* models.

Keywords: *Piper sylvaticum*; Piperine; anthelmintic activity; molecular docking.