Picralima nitida T. Durand & H. Durand extract's helminthicidal potentials and its suppression of metabolic enzymes in *Fasciola gigantica*

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ABSTRACT

Alternative treatment modalities are being sought after reports of rising anthelminthic medication μresistance and their combination. This study looked at the helminthicidal and inhibitory effects of *Picralima nitida* T. Durand & H. Durand extracts on a few targets for metabolic enzymes in *Fasciola gigantica*. A complete Randomized Design (CRD) of 13 treatments duplicated three times with six adult *F. gigantica* in each replicate was used. Group A had no treatment (experimental control) and received no extracts at all. Mebendazole (Mevadex), 50 μg/mL, was administered to Group B-E as the standard control. The experimental groups F–I and J–M received treatments with water and methanol extracts of *P. nitida* leaf, respectively. Percentage mortality, motility, and impact of the extracts on some metabolic enzymes were assayed. At the third hour of exposure, all test groups' *F. gigantica* mortality levels significantly increased ($p < 0.05$) compared to the control. At 600 μg/mL concentration, the methanol fraction had a greatest death rate of 94.4% ($n = 17$) in 3 hours. In comparison to the control, there was a substantial drop in glycolytic enzymes ($p < 0.05$). Hexokinase (1.92 ± 0.09 U/g at 150 μg/ml), Pyruvate kinase (5.88 ± 0.91 U/g at 600 μg/ml), and Glucose Phosphate Isomerase (4.22 ± 0.68 U/g at 600 μg/ml) all showed greater effects in the aqueous fraction. The trend was independent of concentration. The decrease in the glycolytic enzyme levels suggests that *P. nitida* extract exhibited helminthicidal property by decreasing the liver fluke metabolic rate, offering a target for pharmacological intervention.

Keywords: Anthelminthic; *P. nitida*; *F. gigantica*; percentage motility; flukes