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Phytochemical screening and anthelmintic activity of four plant extracts on earthworm, *Eisenia fetida*

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Helminthiasis has medical and veterinary health concerns globally. The development of resistance against synthetic anthelmintic medicines is a major constraint. This leads to a demand for medicinal plants and their products as potential natural substitutes for synthetic drugs. The present study examined the medicinal herbs that possess anthelmintic potential, as an alternative remedy for conventional drugs which was tested on the earthworm, *Eisenia fetida*. Crude methanolic seed extracts of *Nigella sativa* and *Panicum antidotale* and methanol and aqueous leaves extracts of *Justicia gendarussa* and *Clerodendrum phlomidis* were tested with different concentrations on *E. fetida in vitro*. All forms of extracts exhibited significant anthelmintic activity ($p < 0.01$). Dosage dependent decreased paralysis and death time were found when compared with Albendazole. A higher concentration of methanolic seed extract of *P. antidotale* (5%) took less time for paralysis and death of the worm at 3.61 ± 0.33 min and 8.35 ± 0.19 min, respectively when compared to *N. sativa*. Methanolic leaf extracts were more potent than aqueous leaf extracts where methanolic leaf extracts of *J. gendarussa* (30 mg/ml) took less time, 65 ± 0.27 min and 137 ± 0.14 min for paralysis and death of the worm, respectively. The finding from this study shows that methanol extract was more potential than aqueous extracts and increasing concentration of extracts were more potential for anthelmintic activity. The presence of phytochemical properties like alkaloids, tannins, glycosides, flavonoids and saponins exhibited significant anthelmintic potential of *N. sativa*, *P. antidotale*, *J. gendarussa* and *C. phlomidis* with natural protective source.

Keywords: Anthelmintic, *Clerodendrum phlomidis*, *Eisenia fetida*, *Justicia gendarussa*, *Nigella sativa*, *Panicum antidotale*

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