

IN VITRO ANTHELMINTIC ACTIVITY OF SOME GEOPHYTA EXTRACTS

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Helminthes infections are among the most common infections in human beings in which human intestinal parasitic worms are vectored through air, food, and water, which causes disease state, secretes toxins, and steals the vital nutrients from host bodies. The high cost of modern anthelmintics has limited the effective control of these parasites. However, increasing problems of development of resistance in helminthes against anthelmintics have led to the proposal of screening medicinal plants for their anthelmintic activity. The present study was aimed to investigation of the anthelmintic potential of crude MeOH extract of *Allium reuterianum*, *Hyacinthella lineata*, *Ornithogalum umbellatum*, *Sternbergia clusiana* and *Cyclamen coum* aerial parts and bulbs.

Methanolic extracts were obtained from using leaves and bulbs of geophyta species. Anthelmintic activity was evaluated on adult *Oswaldocruzia filiformis*, *Rhabdias bufonis*, *Cosmocerca ornata*. Various concentrations (5, 10, 20 mg/ml) of each extract were tested for anthelmintic activity. Group I,II and III earthworms were released in 5, 10, 20 mg/mL of methanol extract respectively and and 6 worms helminths of 8-10cm were placed in petridish containing 30 ml of above test solutions of extracts. All the test solutions and standard solutions (normal saline) were prepared freshly before starting the experiment. Worms should not relieve even in normal saline. Time for death of worms were recorded after ascertaining that worms neither moved when shaken vigorously nor when dipped in warm water and fading of color of worms. Earthworms were observed and the time taken for death was monitored and documented in minutes.

All extracts were able to show anthelmintic activity at all concentrations. The activities are well comparable with the standard drug, The methanol extract of bulb of *S. clusiana* at high concentration (20 mg/ml) showed good anthelmintic activity. Among the various geophyta extracts tested, *S. clusiana* at 20 mg/ml showed significant anthelmintic activity. On the other hand methanolic extract at the concentration of 20 mg/ml showed the time of death at 20 min. Synthetic anthelmintic drugs are usually associated with various side effects. More attention is attracted by the increasing problems of development of resistance in helminthes against synthetic anthelmintics. However, plants are the richest source for bioactive compounds. The best alternative over modern synthetic drugs is plant derived medicine. Many

investigators have worked on the similar aspect and their reports support this investigation revealing that plants are potent anthelmintic agents.

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IMPACT OF APPLYING LOCAL ORGANIC GRANULAR FERTILIZERS FOR SOIL AGROCHEMICAL PROPERTIES IN ECO FARMING

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With increase of the demand and consumption of ecologic production, free from pesticide and other synthetic toxic substances, also solution of the environmental problems, the system of eco agriculture is one of the most developing in the EU and in the world. One of the key requirements for the eco production is soil that maintains agrochemical properties without exhausting or biodegradation processes, also keeps an appropriate level of humus and increases fertility permanently (1,2). Eco production implies using of various fertilizers and soil enhancing measures, meeting special requirements, not of the synthetic origin (1,3). The mentioned problems could be solved by applying already different organic fertilizers in granules that have been already created or are in process. One of the recent technologies in eco farming is local application of organic fertilizers in granules with the seeds of agricultural plants (3). This technology has not been studied broadly, so more detailed studies should be performed.

In order to solve this problem, the Agro ecology Centre at the Academy of Agriculture of Vytautas Magnus University 2018–2019 performed vegetative tests with *Mitscherlich* type plates – plastic pots with the holes on bottom and a plate below. Vegetative plates diameter – 18.0 cm, height – 16 cm. The tests have been performed in a vegetative greenhouse of the Open-Access Centre at the Academy of Agriculture of Vytautas Magnus University. The tests involved two samples of soil with different granular metric content and agrochemical properties. The tests have been performed for four repeated times. Winter wheat have been cultivated in a loamy alkaline soil of a medium humus level, with P and K; when the oats have been cultivated in a sandy and very acidic soil with a low level of humus, P and K. The tests have been performed with three granular organic fertilizers, made from cattle manure compost (Lithuania), bird manure (Holland) and meat bone flour (Lithuania). The fertilizers in the vegetative plate have been