Comparative In vitro Anthelmintic Activity of Centratherum Anthelminticum (L.) and Mebendazole

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Abstract

Helminthiasis is the mos common cause of the inte sinal infe sation. Anthelmintic from natural sources may play a key role in the treatment of parasitic infe sation. Aqueous extracts from the seed of Centratherum Anthelmintic (L). were inve sigated for their anthelmintic activity agains Earthworm (Eisneia Fetida). Mebendazole is used as the Standard drug. Extract was sudied in the bioassay a 100 mg/ml, which involved determination of time of paralysis and time of death of the worms.

Keywords: Centratherum anthelmintic (L); Mebendazole; In vitro anthelmintic activity

Introduction

e plant Centratherum anthelmintic (Wild) Kuntze called as 'Kalijiri' in Hindi is reported to be a medicinally important plant; this species has a wide variety of application in traditional medicine, especially for treatment of fever, cough, and diarrhoea.

e various part of Centratherum anthelmintic are documented to possess medicinal properties such as, Centratherum anthelmintic Kuntz (Hindi- Kalijiri) previously known as Vernonia anthelmintica belongs to family composite (1). It has a good anthelmintic property and used for the treatment of various skin infections. It is also reported to be used in asthma, kidney troubles, cough and also used to remove blood from liver (2). But no work has been done until now to establish its antidiabetic potential. e major classes of chemical constituent present in this plant are glycosides(3), carbohydrates(4), phenolic compounds and tannins(5), avonoids(6), proteins, saponins(7), sterols(8,9), lipids(10) and fats(11).

Chemical constituent

e major chemical constituent present in C. Anthelminticum is Vernodalin, Butein, Daucosterol, Vernolic acid, Vernodalol, Vernovan, Stigmastadienol, Lupeol and Beta-Sitosterol. Other chemical constituents are Vernolic acid, Linoleic acid, Oleic and Palmitic acid, Stearic acid, Stigmasterol, Vernosterol, Avenasterol, D-lactose, L-sorbose, D-arabinose, Protein, Lipids and Fats [1-3]. e anthelmintic activity of C. Anthelminticum is attributed to the presence of Anthraquinone [4].

Materials and Methods

Plant materials

e Centratherum Anthelminticum Plant Seed are collected from botanical garden of gunmala Herbal botany, Indore, India. e Seeds were air-dried and grinded to ne powder.

Preparation of extracts

Centratherum Anthelminticum (L.) Shows the More Anthelmintic Activity in Aqueous Compare to Methanolic and Ethanolic Extract. e anthelmintic activity of C. Anthelminticum is attributed to the presence of Anthraquinone [4].

Animals

India adult earthworms, which were collected from moist soil of swami-Chincholi and washed with normal saline to remove all faecal matter, were used for anthelmintic study. e earthworms (Eisenia Fetida) of 5–7 cm in length and 0.1–0.2 cm in width, 500- 600 mg.

Weight was used for all the experimental protocol due to its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings.

e anthelmintic activities have been reported by using adult earthworm Eisenia foetida by a number of references due to its anatomical and physiological resemblance with the intestinal parasite of human beings [5-8]. Its easy availability and maintenance makes it one of the most commonly used models [1].

Drugs and chemicals

e following drugs and chemicals were used.

Standard Drug: Mebendazole, distilled water.

Bioassay for Centratherum Anthelminticum (Kalijiri)

Preparation of Standard Plot: To prepare standard plot, C. Anthelminticum (100 mg) was accurately weighted and transferred to 100 mL volumetric asks and volume was adjusted with distilled water to get the concentration of 1 mg/mL. Further dilutions were made from stock solution (1 mg/mL). were transferred from stock solution into Volumetric ask 10 mL volumetric ask and volume was adjusted with distilled water to get the concentration of 5, mg/mL. Di erent weights i.e. 50, mg were accurately weighed and transferred to 10 mL volumetric asks and volume was adjusted with distilled water to get the concentration of 5 mg/mL. Sample (10 mL) from each dilution was transferred to petri plate containing one earthworm each. e study was conducted in triplicate and ADT was noted (Table 1).

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Anthelmintic Activity

Anthelmintic activity of C. Anthelminticum was evaluated using Eisenia foetida. Di erent concentrations of spray dried aqueous decoction of C.

Anthelminticum were tested in the bioassay. APT and ADT were noted. Mebendazole is used as standard drug for investigation of biological activity [9]. Spray dried powder of C. Anthelminticum was weighed is quantities of 0, 50,100,150 mg. Weighed amounts were transferred to 10 mL volumetric ask and volume was adjusted with distilled water to get the concentration of 0, 5, 10, 15 mg/ mL.

Observations were made for the time taken until the paralysis and death of an individual worm. e paralysis was said to occur when the worms were not able to move even in normal and. Death was concluded when the worms lost their motility followed with fading away of their body colors 15 .

Experimental work

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