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NOTE

Anthelmintic Activity of *Heliotropium zeylanicum* and *Capparis sepiaria* L.

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The study reports anthelmintic activity of the petroleum ether (60-80 ºC) and ethanol extracts obtained from plants *Heliotropium zeylanicum* and *Capparis sepiaria*. Bothe extracts showed significant and dose dependant activity compare to standard drug albendazole. Amongst them ethanol extract of *Heliotropium zeylanicum* and *Capparis sepiaria* (40 mg/mL) showed better activity.

Key Words: *Heliotropium zeylanicum, Capparis sepiaria,* Anthelmintic.

There are number of plant drugs known today, having anthelmintic activity. *Heliotropium zeylanicum* (Fam: Boraginace) or Pilo hathisundho (Guj), whole plant is used in the traditional medicines of the tribes of Tamil Nadu to treat boil, ulcers and snakebites. The ethanolic and chloroform extracts of *Heliotropium zeylanicum* were reported to have hypoglycemic and antimicrobial activity, respectively[1]. Phytochemical investigation proved the presence of alkaloids, flavanoids, steroids, reducing sugars, tannins and triterpenoids in this extracts.

The plant of genus *Capparis sepiaria* (Fam: Capparaceae) is used as blood purifier, stomachic, tonic and appetizer. The flowers, leaves and roots are used in cough and toxemia and its root powder is used as an errhine and also as a cure for the snake bite. It also possesses febrifuge properties and is used to treat skin diseases, tumors, inflammation, as a fodder for goats and diseases of muscles[2,3].

Root barks of *Capparis sepiaria* was analyzed for its phytoconstituents and a complex crystalline alkaloid with a phenolic hydroxyl group was isolated and characterized. Petroleum ether, methanol and water extracts of root bark was also reported to possess significant analgesic and antiinflammatory activity. Although several studies on the various pharmacological activities of *Capparis* species have been published; no reports have been found concerning the pharmacological action of leaves of *Capparis sepiaria* except analgesic, antipyretic and antiinflammatory activity[4]. Therefore, the present study was undertaken to evaluate the anthelmintic activity of the crude petroleum ether and ethanol extract of the leaves of *Capparis sepiaria* (PECS and EECS) and whole plant of *Heliotropium zeylanicum* (PEHZ and EEHZ).

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Whole plant of *Heliotropium zeylanicum* and leaves of *Capparis sepiaria* was collected from Tiruchirappalli, Tamil Nadu during the month of June-July and identified by botanical survey of India, Coimbatore and a voucher specimen was deposited in our library. The plant material was shade dried and powdered and passed through sieve No. 40.

Both the powdered plant material was extracted with petroleum ether (40-60 ºC) and ethanol in Soxhlet apparatus. The solvent was removed under reduced pressure which gave the green in PEHZ and dark green in EEHZ and PECS and greenish black in EECS coloured residues for both plants. The PEHZ, EEHZ and PECS, EECS was concentrated under vacuum at 40-60 ºC yielded a residue (10.8, 9.4 and 8.2, 6.5 % w/w), which was stored in a desiccator at room temperature. The dried extracts were suspended in 1 % gum acacia in normal saline (vehicle) and used for anthelmintic activity.

The anthelmintic activity was carried out on adult Indian earthwarm *Pheretima posthuma* in view of its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings[5-7]. The method of Mathew *et al.*[8] and Dash *et al.*[9,10], was followed by anthelmintic screening. Sixteen groups of each containing of six earthworms of approximately equal size were released into 10 mL of desired extract solution/suspension. Each group was treated with one of the following vehicle (5 % DMF in normal saline containing 1 % acacia). Albendazole or petroleum ether or ethanol extract (20 and 40 mg/mL each) of *Heliotropium zeylanicum* and *Capparis sepiaria* in normal saline containing 5 % DMF. Observation was made for the time taken for paralysis and death of individual worms (Table-1). Paralysis was said to occur when the worms did not revive even in the normal saline. Death was concluded when the worms lost their motility followed with fading away of their body colour.

TABLE-1
ANTHELMINTIC ACTIVITY OF *Heliotropium zeylanicum* AND *Capparis sepiaria*

Treatment vehicle	Time taken for paralysis (min)	Time taken for death
Albendazole (20 mg/mL)	1.35 ± 0.303	4.02 ± 0.273
Control (5 % DMF in normal saline)		
PEHZ (20 mg/mL)	0.56 ± 0.212	1.16 ± 0.337
PECS (20 mg/mL)	0.28 ± 0.921	0.93 ± 0.912
EEHZ (40 mg/mL)	0.17 ± 0.205	0.40 ± 0.289
EECS (40 mg/mL)	0.17 ± 0.356	0.39 ± 0.246

PEHZ = Petroleum ether extract of *Heliotropium zeylanicum*; PECS = Petroleum ether extract of *Capparis sepiaria*; EEHZ = Ethanol extract of *Heliotropium zeylanicum*; EEHZ = Ethanol extract of *Capparis sepiaria*; Results expressed as mean ± SEM from six observations.

The perusal of the data reveals that, both the petroleum ether extract showed minimum anthelmintic activity at a concentration 20 mg/mL, whereas the ethanolic extracts of the other concentration (40 mg/mL) of both the extracts showed marked

degree of anthelmintic activity. The concentration is comparable with that of the extract produced by the reference standard albendazole. However, the ethanolic extracts showed the significant effect compared with the standard drug.

Therefore, the present study reveals that the ethanolic extracts was more potent than the petroleum ether extracts, even though both the extracts was more endowed with anthelmintic property. The activity observed was found to be concentration dependent. Potency of the extracts was found to be inversely proportional to the time taken for paralysis/death of the worms.

The above findings justify the anthelmintic properties of the plants. Further study regarding the isolation and characterization of the active principles responsible for anthelmintic activity are currently under progress.

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