



Three Alkaloid Extracts From Leaves Of *Eichhornia Carssipes* Collected From Dantarmakki Kere Of Chickmagalur And Their Anthelmintic Activity

Prathima Mathias D.A.

Associate Professor, Department of PG studies in Industrial Chemistry and Chemistry,
Sir M.V. Government Science College, Bommanakatte,
Bhadravathi 577 302, Shivamogga, Karnataka, India.

Abstract: Water weeds are found to be increasing the biological oxygen demand of ponds and lakes, hence their presence in the water bodies is becoming a matter of concern. In recent years few researchers have reported production of biodiesel and removal of heavy metal ions from water bodies by the famous water weed *Eichhornia carssipes*. Due to absence of industrial effluents in the Dantaramakki kere of Chickmagalur we found it interesting to carry out the anthelmintic screening of few non polar solvent soluble and few water soluble extracts of *E. carssipes*. We report in this paper even the results obtained by the water sample analysis of the pond.

Index Terms - *Eichhornia carssipes*, alkaloids, anthelminthic activity, leaves.

I. INTRODUCTION:

Helminthiasis is a disease caused by infestation of parasitic worms in any form. Researchers are keen on finding good and safe anthelmintics¹⁻¹². In our present study we report anthelminthic activity of *Eichhornia carssipes* commonly known as water hyacinth. Alkaloids are found to possess wide spectrum of biological activities and hence we concentrated on extracting alkaloids by three different methods reported in the literature. The alkaloid crude extracts and the non-alkaloid extracts (six extracts in total) were investigated for their potential ant helminthic properties. Helminthiasis is caused by parasites and maintaining them would require live tissue host, hence for this preliminary investigation *Pherithuma posthuma* commonly called as the earth worm was chosen. The earth worms have similar life cycle to that of round worm and tape worms. The results and conclusion are discussed in the body of this paper.

II. MATERIALS

Earth worms, petri dishes, beakers, measuring cylinders, standard drugs (piperazine citrate and albendazol), glass rods and stop watch.

The earth worms were procured from Chickmagalur during the time of experiment. The worms were washed cleanly to remove adhering materials and were sorted out for uniform size and length. The worms were acclimatized before experimentation.

III. METHOD

a) Extraction:

Method -1 : Alkaline extraction followed by ether extraction.

Method-2 : Acidulated water extraction followed by neutralization.

Method 3: Alkaline extraction followed by chloroform extraction.

Table 1 : List of codes for **Leaves** extracts of *Eichhornia carssipes*

METHOD	FRACTION	COLOUR, YIELD & CONSISTENCY	CODE
Method-1	Ether soluble	Yellow, gummy, 50 mg	L ₁
	Ether insoluble	Dark brown, amorphous, 46.314g	L ₂
Method-2	Neutralized residue	Snuff, amorphous, 0.459 g	L ₃
	Neutralized filtrate	Black brown, amorphous,	L ₄
Method-3	Chloroform soluble	Brown, amorphous, 50 mg	L ₅
	Chloroform insoluble	Snuff, amorphous, 1.305 g	L ₆

b) Anthelmintic activity

Slightly modified Gaind et. al. technique was adopted. The time for paralysis (hot water test) and for death were recorded. The experiment was repeated three times to get mean time (in minutes) for paralysis and death.

IV. RESULT

Table-2: Anthelmintic activity of the crude extracts of roots of *Eichhornia carssipes*

Sl. No.	Drug	Dose	Paralysis time (min)	Death time (min)
1	L ₁	2.5 mg/mL	1	5
2	L ₂	10 mg/mL	-	-
3	L ₃	10 mg/mL	-	-
4	L ₄	10 mg/mL	-	-
5	L ₅	2.5 mg/mL	5	15
6	L ₆	10 mg/mL	50	-
7	Standard (Piperazine citrate/Albendazole)	10 mg/mL	80 / 53	105 / --
8	Control	---	---	---

V. DISCUSSION

The earth worm move by ciliary motion. Its outermost layer is mucilaginous and composed of polysaccharides that enable it to move. Damage to mucopolysaccharide membrane will expose the outer layers and restricts its movement causing death. The anthelmintic activity of the alkaloid extracts of the root (L₁ and L₅) at minimum concentration of 2.5 mg mL⁻¹ can be attributed to the same.

VI. CONCLUSION

If Water Hyacinth is grown in uncontaminated water bodies, their alkaloid extracts can be used for treating helminthes. Further purification and isolation of single component may lead to a new anthelmintic drug from world's most troublesome weed.

VII. ACKNOWLEDGEMENTS

We are thankful to Department of Pharmaceutical Chemistry, Davangere, for helping and guiding us in conducting the anthelmintic activity.

REFERENCES

- [1] Nina L. Etkin, 1992, Medical Anthropology Quarterly, Vol 6, Issue 2, pages 99–113.
- [2] Ursula Steiger MD, Jacques Cotting MD and Jürg Reichen MD Berne, 1990, Clinical Pharmacology and Therapeutics, Vol 47, pp 347–353.
- [3] V. Rajshekhar, 1998, Acta Neurologica Scandinavica, Vol 98, Issue 2, pages 121–123.

- [4] Rafael Igual-Adell, Carlos Oltra-Alcaraz, Enrique Soler-Company, Pilar Sánchez-Sánchez, Josefa Matogo-Oyana and David Rodríguez-Calabuig, 2004, Expert Opinion on Pharmacotherapy, Vol. 5, No. 12 , Pages 2615-2619.
- [5] S. Muramoto and Y. Oki, 1983, Bulletin of Environmental Contamination and Toxicology Vol 30, Issue 1, pp 170-177.
- [6] J.N Nigam, 2002, Journal of Biotechnology, Vol 97, Issue 2, pp 107–116.
- [7] Kaustubha Mohanty, Mousam Jha, B.C. Meikap and M.N. Biswas, 2006, Chemical Engineering Journal, Vol 117, Issue 1, pp 71–77.
- [8] Fareed MF, Haroon AM and Rabeh SA, 2008, Pakistan Journal of Biological Sciences, Vol 11, Issue 21, pp 2454-2463.
- [9] Vivot Eduardo, Muñoz Juan de Dios, Herrero Isidro, Dragán Analía and Sequin Christian, 2006, Pharmacologyonline Vol 3, pp 845-849.
- [10] S. K. Gupta and A. B. Banerjee, 1972, Economic Botany, Vol 26, Issue 3, pp 255-259.
- [11] R. R. Upadhyay S. N. Dixit, S. C. Tripathi, 1976, Economic Botany, Vol 30, Issue 4, pp 371-374.
- [12] Thamaraiselvi, P. Lalitha and P. Jayanthi, 2012, Asian Journal of Plant Science and Research, Vol 2, issue 2, pp 115-122.

