INTERNATIONAL JOURNAL OF PHARMACY AND ANALYTICAL RESEARCH

ISSN: 2320-2831

IJPAR |Vol.10 | Issue 4 | Oct - Dec -2021
Journal Home page: www.ijpar.com

Research article *Open Access*

Preliminary phytochemical investigation and Evaluation of anthelmintic activity of cyperus rotundus

S.A.Vadivel*[1], G.Sivasankari[2], A.Karthigayani[2], N.Neeraj kumar[2], G.Bharathi[2], Dr.P.Dinesh kumar[1], K.Vanjinathan[2]

[1]*Research Scholar, Department Of Pharmaceutics,*
[2]*Smt Gandhimathi College Of Pharmacy, Nallan Pillai Petral Village, Tiruvannamalai, Tamil Nadu. India.*

***Corresponding Author: S.A.Vadivel**
Email: vetrivadivel24@gmail.com

ABSTRACT

The main objective of our present study was to screen the presence of different phytoconstituent in the extract of cyperus rotundus tubers. The phytoconstituent is analysed by thin layer chromatography by using suitable reagents. The anthelmintic activitys evaluated in various extract of cyperus rotundus tubers has been investigated in bio-assay by using albendazole as reference drug to estimate the time of paralysis and death of the worms. The ethanol extract is showed more potent in compare to other extract for paralysis and kill the worms.

Keywords: *cyperus rotundus tubers extracts, albendazole, Pithemera*

INTRODUCTION

The cyperus rotundus is a perennial plant, it's family cyperaceae. Cyperus rotundus was called muthakach in tamil (korai in some villages) It may reach hight up to 140cm (55 in).it is also called nut grass and nut sedge, are derived from its tubers. The leaves sprout in ranks of three from the base of the plant around 5 to 20cm(2-8in) long. It flower stems have a triangular cross section. It flower is bisexual & three stamina and three stigma pistil with the inflorescence having 3 to 8 unequal spikes. It fruit is three angled achene. The young plants initially form white, fleshy rhizomes upto 25 mm(1.0 in)in dimension in chains. Some rhizomes grow upward in the soil, then form a buln like structurefrom which new shoots & roots grow, other rhizomes grow horizontally or downward and form dark reddish brown tubers or chains of tubers. It was found in all countries like india, assam, Afghanistan, japan, Pakistan, Philippines, srilanksbwestrn Australia, etc. the antibacterial activity of crude of cyperus rotundus have efficiency against some clinical isolate of bacteria. The world health organization plants belonging to clinical aspect, considered as the worthiest choice in the drug production. The cyperus rotundus locally used in traditional medicine decoction vor flatulence, vomiting, nausea, regulating hormones, diuretics, tonic hypoglycemic.

MATERIAL AND METHODS

Plant material

The entire herb of cyperus rotund us rhizomes, tuber was collected from sangiyam, keezhapalayam and E.N. palayam village. That village 30km away from kallakurichi.

Chemicals

All the chemicals, reagents used for our entire experiment work are procured from our college labe (Smt gandhimathi college of pharmacy).

Experimental Activity

After the cyperus rotundus rhizomes, tuber was collected. It is washed with fresh water to remove soily & adhered matters. Then it is dried under shade at room temperature and fumigated. They was powderd by using pulveriser and sieved with 40 mesh size. About 2kg of powdered drug was weighed & subjected to successive soxhlete extraction with ethanol(60-70^{o}C), aqueous for period of 48 hours. Finally obtained extract was filtered through a muslin cloth. Then it is dried in vaccum condition to get a semisolid mass whose yield was charactered in table-A. The dried extract was subjected to various chemical tests to detect the phytochemical constituents.

Selection of worms

The adult earth worms of pheretima posthuma was used to carry out anthelmintic evaluation. The worms are collected from moist soil of medicinal garden. The worms washed with saline water to remove the faecal matter. The worms about 12 cm length and 0.5 to 0.7 cm width was selected for the experiment. Finally ready, anatomical & physiological resemblance of pheretima posthuma made, it to be used initially for in vitro and in vivo evaluation of anthelminitic activity.

Evaluation of anthelmintic activity

The anthelmintic activity is carried out on earthworm of pheretima posthuma nearly equal size, three reference standard albendazole suspension(40mg/ml). the worms was placed in petridishes containing 20ml of sample solution. The paralysis time was noted either any movement could not be observed except when the worms was shaken vigorously. Then the worms death included lost their motility followed with white secretion and fading away from their body colours.

RESULT

The Phytochemical investigation of cyperus rotundus tubers was showed, The alkaloids, Phenols, flavanoides, Terpenoids are more intensely present in the ethanol extract. Phlobatannins, Saponins, tannins,more intensely present in aqueous extract. Increase the concentration of the extract decrease in paralysis and death time of worms. The anthelminitic activity is presence of more intense alkaloids, phenolic compounds. Tannins which have antimicrobial & antioxidant activity. This study is proved to be strong evidence for anthelmintic activity.[15-16]

Table A: Phytochemical screening of cyperus rotundus tubers

S.NO.	Chemical constitutent	Hexane extract	Ethanol extract	Aqueous extract
01	Alkaloids	-	+++	+
02	Glycosids	+	+	Not clear
03	Flavanoids	-	+++	+
04	Anthroquinone	-	+	-
05	Phenols	-	+++	+
06	Phlobatannins	-	+	+++
07	Saponins	-	+++	+++
08	Steroids	-	+	+
09	Tannins	-	+++	+
10	Terpenoids	+	+++	Not clear

'+' positive, +++ strongly positive, - negative.

Table B: Anthelmintic Activity Of cyperus rotundus tubers

S.No	Group	Concentration (mg/ml)	Time (minutes)	
			Paralysis	Death
01	Standard (albendazole dugs)	10	4.03±0.04	22.11±0.17
		20	3.27± 0.42	14.12±0.65
		40	1.47± 0.21	8.45±0.48
02	Hexane extract	10	185.6±0.12	250.45±0.43
		20	135.18±0.24	147.90±0.13
		40	98.26±0.08	128.22±0.31
03	Ethanol extract	10	48.30±0.17	90.25±0.13
		20	32.13±0.04	60.31±0.30
		40	11.41±0.21	38.16±0.18
04	Aqueous extract	10	142.22±0.23	190.07±0.18
		20	103.36±0.25	146.11±0.21
		40	63.11±0.17	90.04±0.33

REFERENCES

1. Aharoni A, Jongsma, M A. & Bouwmeester, H J. (2005). Volatile Science Metabolic Engineering of Terpenoides in Plants, Trends In Plant Science, 10(12), 594-602. Al-Massarani S.
2. Al-Enzi F. Al-Tamimi, M. Al-Jomaiah, N. Al-Amri, R. Başer, K. H. C & Demirci B. (2016). The Composition & Biological Activity Of Cyperus Rotundus, The tuber Volatiles From Saudi Arabia, Natural Volatiles and Essential Oils :3(2)
3. Bhattarai N K 1993 Folk Herbal Remedis For Diarrhea & Dysentery In Central Nepal.
4. Bown D(1995), Encyclopaedia Of Herb & Their Use London: Dorling Kindersley.
5. Dang G K Parekar R R. Kamat S. K. Scindia, A. M. & Rege, N. N (2011). Anti-inflammatory Activitys Of Phyllanthus Emblica, Plumbago Zeylanica & Cyperus Rotundus in Acute Models Of Inflammation. Phytotherapy Research 25(6) 904-908.
6. Dugger. H (2002) U.S. Patent Application No: 10/230:075.
7. Harbone B. 1984 Phytochemical Methods. 2nd. New York Champan 4:4-7.
8. Himaja N, Anitha K, Joshna A, & Pooja.M (2014), Review Article On Health Benefits Of Cyperus Rotundus. In.Journal Of Drug 2:4, 136-141, Him-Che.Y (1985). Handbooks Of Chinese Herbs And Formula. Institute Of Chines Medicine Los Angeles 1, S219-S224
9. Kabbashi A S, Mohammed S. E. A. Almagboul A. Z, & Ahmed I. F. (2015). Anti-microbial Activity & Cytotoxicity Of Ethanolic Extract Of Cyperus Rotundus, American Journal Of Pharmacy & Pharmaceutical Sciences 2:1, 1-13.
10. Kage D. N, Seetharam Y N, & Malashetty V. B. (2009). In-Vitro Antibacterial Property & Phytochemical Profile Of Trichosanthes Cucumerina L. Var. Cucumerina. Advances in Natural & Applied Sciences 3:3, 438-442.
11. Kilani S., Sghaier, M. B, Limem I., Bouhlel I., Boubaker J., Bhouri, W. & Ghedira K. (2008). inVitro Evaluation Of Antibacterial & Antioxidant, Cytotoxic & Apoptotic Activitiys Of The Tubers Infusion And Extracts Of Cyperus Rotundus. Bioresource Technology 99(18), 9004- 9008.

12. Komai K. & Ueki K. (1975), Chemical Properties And Behavior Of Poly Phenolic Substances In Purple Nutsedge (Cuperus Rotundus L.). Weed Research 20(2), 66-71.
13. Komai K. Iwamura J & Ueki. K (1997), Isolation Identification & Physiological Activities Of Sesquiterpens in Purple Nutsedge. Weed Research22:14-18.
14. Mutalib L Y:2015. Comparative Physicochemical Phytochemical & Biological Studys Of Botanically Related Species From Brassicaceae Family Grown In Kurdistan Region, Iraq. Asian Journals Of Research In Pharmaceutical Science 5:3, 168-174.
15. Karal. SS et al.evaluation of invitroanthemintic activity of ceratophylhum demersum linn.drugs 2010;47(8), 63-65.
16. Padma.S vankat et al anti-oxidant properties of some exclusive species of zingeberacea family of Manipur.electronic journal of environmental agricultural and food chemistry 1318-1322.