



INTERNATIONAL JOURNAL OF PHARMACY AND ANALYTICAL RESEARCH

ISSN:2320-2831

IJPAP | Vol.10 | Issue 3 | Jul - Sep-2021
Journal Home page: www.ijpar.com

Research Study

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Phytochemical Investigation and In-Vitro Evaluation of Anthelmintic Activities of Pergularia Extensa

S.A.Vadivel^{*1}, Dr.R.P.Ezhilmuthu², G.Nitish Kumar³

¹Assistant professor, SmtGandhimathi college of pharmacy, Thiruvannamalai, Tamil nadu, India.

²Principal, K.G. college of pharmacy, Vizhupuram, Tamil nadu, India.

³R.R.College of pharmacy, Chikkabanavara, Bangalore, Karanataka, 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 present in the extract of whole plant of pergularia extensa. The phytoconstituent is analysed by thin layer chromatography by using suitable reagents. The different concentration (10, 20, and 40 mg/ml) of various extract of pergularia extensa has been investigated in bio-assay by using albendazole as reference drug to estimate the time of paralysis and death of the worms. The benzene extract is showed more potent in compare to other extract for paralysis and kill the worms.

Keywords: pergularia extensa extracts, albendazole, Pithemera

INTRODUCTION

Helminthiasis is still one of the most significant human & animal infectious diseases. Some important component of complementary and alternative medicines, ayurvedic medicinal plants are useful for the discovery and development of new chemical substance for helminth control. Pergularia extensa is an ayurvedic herb which has been used in ayurveda form thousand years due to its great medicinal properties. Pergularia extensa is also known as Daemia extensa(tamil: uttamani or veliparuthi). It is a small perennial vine belongs to the asclepiadoideae family. It is mainly grows in

subtropical and tropical regions of india, srilanka, Pakistan, Afghanistan, Arabia and Egypt. Its leaves like tobacco and adathoda. The major alkaloid of this plant is saemine which is soluble in alcohol, ether, and water. It also bitter glycoside contains. Its leaves and flowers are found to show expectorant, emetics and anthelmintic. The whole plant is also used in treatment of asthma, antidote in snake bite, exoectorants, diarrhea, rheumatism and liver disorder. Our aim of present study is evaluate the in-vitro anthelmintic activity of various extract of whole plant of pergularia extensa.

METHODS AND MATERIALS

Plant Materials

The whole plant of *pergularia extensa* was collected from gandhimathi college of pharmacy medicinal garden Thiruvannamalai.

Chemicals

The all chemicals and reagents used for the entire experiment work are procured from our college.

Experimental activity

The whole plant was collected and they were washed with water to remove soil and adhered matters. Then it is dried under the shade at room temperature. After dried they were powdered by using pulveriser and sieved with 40mesh size. Above 1kg of powder of drugs was weighed and subjected to successive soxhlete extraction with benzene and petroleum ether (60-70°C) for 48 hours. The dried marc were subjected to cold maceration by using hydroalcohol and acetone (1:1) for 3 consecutive days. Finally obtained extract was filtered through muslin cloth. They was concentrated under reduced pressure & dried in vaccum condition to get semisolid mass whose

yield was chartered in the table-A. The dried extract was subjected to various chemical test to detect presence of different phytoconstituents.

Selection of worms

The adult earth worms of *pheretima* was used to anthelmintic avaluation. It was collected from the moist soil of medicinal garden. The worms are washed with saline water due to removal of faecal matter. They worms of *Pithemera* about 12 cm length and 0.3 to 0.5 cm width was selected for our experiment.

Evaluation of anthelmintic activity

The anthelmintic activity was carried on adult earthworm (*Pithemera*) of equal size, 6 per group. All the extract was suspended in 1% w/v carboxy methyl cellulose solution prepared in distilled water to obtain concentration of 10,20,40 mg/ml. albendazole suspension is standard reference 40mg/ml zentel micronized suspension was diluted by same suspending agent obtained concentration of 10 and 20 mg/ml. worms placed in petridish it containing 15ml of sample solution. The worms paralysis time was noted included when it was lost their motility(death) and fading away of their body colours.

RESULTS

The phytochemical investigation of *pergularia extensa* showed that alkaloids is more intensely present in the all extract except pet ether,acetone and benzene extract showed presence of fixed oil and phenolics more intensely. the tannins, carbohydrates and glycoside are more intensely present in hydroalcohol extracts. The concentration of all the extract was increased, showed decreased in paralysis and death time of worms. Then the

comparing to all the extract, benzene extract showed significant activity with standard (albndazole) at various dilution. Anthelmintic activity is due to presence of more intense phenolic, alkaloids and tannins compounds which have antimicrobial, antiseptics and antioxidant activits. This study was proved to be strong avidence for anthelmintic property.

Table-A: Preliminary Phytochemical Investigation Of Various Extract Of Pergularia Extensa

S.No.	Name of phytoconstitute	Pet-ether extract	Benzene extract	Acetone extract	Hydroalcohol extract
01	Alkaloids	++	++	-	++
02	Carbohydrates & glycosides	-	-	+	++
03	Fixed oils & fats	++	++	-	-
04	Flavones & flavonoids	-	-	-	-
05	Gums	+	+	-	-
06	Phenolics & poly phenolics	+	++	-	-
07	Proteins & amino acids	-	-	-	+
08	Saponins	-	-	+	-
09	Tannins	+	+	-	++
10	Terpenoids	-	-	-	-
11	Amount {grams}	0.0567	0.1206	0.225	1.207
12	Percentage yield w/w	0.43	0.873	0.654	0.997

Table B: Anthelmintic Activity Of Various Extract Of Whole Plant Of Pergularia Extensa.

S.No	Group	Concentration (mg/ml)	Time (minutes)	
			Paralysis	Death
01	Standard (albendazole dugs)	10	4.13±0.04	22.11±0.17
		20	3.17± 0.42	14.12±0.65
		40	1.37± 0.21	8.45±0.48
02	Pet-eteht extract	10	165.6±0.12	250.45±0.43
		20	115.18±0.24	147.90±0.13
		40	97.26±0.08	128.22±0.31
03	Benzene extract	10	52.30±0.17	90.25±0.13
		20	31.13±0.04	60.31±0.30
		40	12.41±0.21	38.16±0.18
04	Acetone extract	10	152.22±0.23	190.07±0.18
		20	113.36±0.25	146.11±0.21
		40	83.11±0.17	90.04±0.33
05	Hydroalcohol extract	10	164.25±1.5	249±1.2
		20	91±1.2	187.25±2.3
		40	68±1.3	107.30±2.0

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