WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 13, Issue 1, 1333-1341. Research Article ISSN 2277–7105

PHYTOCHEMICAL AND PHARMACOLOGICAL INVESTIGATION DIFFERENT SOLVENT EXTRACT OF BAUHINA PURPUREA L. FLOWER

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Article Received on
08 November 2023,

Revised on 29 Nov. 2023,
Accepted on 19 Dec. 2023

DOI: 10.20959/wjpr20241-30770

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ABSTRACT

Bahunia purpurea Lin belong to the family fabaceae. The present research was conducted to investigate the Anthelmintic activity of different extract of flowers of Bahunia. Preliminary phytochemical investigation were performed by chemical tests. The Anthelmintic activity was conducted by worm collection and authontification and Anthelmintic assay. In the preliminary phytochemical test, the leaves extract showed the presence of phytosterols, alkaloids, glycosides, flavonoids, saponins, tannins, and phenolic compounds. Ethyl acetate and methanolic extracts of Bauhinia purpurea linn showed significant action.

KEYWORDS: Phytochemical Screening, Medicinal Plant, Bauhinia Purpurea L.Flower.

INTRODUCTION

Kovidara is a sanskrit ayurvedic name of a medicinal tree botanically equated to *Bauhinia purpurea* linn belongs to the family fabaceae**.** It is a medium sized evergreen ornamental tree, found through out India ascending up to an altitude of 1300 meters in the sub-himalya tract sparingly through out India and china often cultivated and also planted among avenues for shade and ornamental purpose. The flowers, root and bark of the *Bauhinia purpurea* linn tree have been used in ayurvedic medicinal formulation since time immemorial and has been mentioned in Ayurvedic classical text. It also forms a part of folk and traditional community health practices in certain part of Karnataka and India. Ayurvedic preparation also prescribe

it's use as one of the ingredients for intrinsic hemorrhage, snake poisoning etc. The flower of the tree have got medicinal use both in Ayurveda and in traditional system. Hence there is a necessity to develop standardization identification parameters to aid quality control and to avoid adulteration with special focus on flower. The botanical identification study have been reported earlier, phytochemicals finger printing has not been carried out till now. Hence the study is aim attempt to develop and reportcomprehensive authentication parameters including macroscopical, microscopical physio- chemical profile of the flower of *Bauhinia purpurea* linn.

Taxonomical classification of *Bauhinia purpurea* linn

Clade :- Tracheophyte
Division :- Angiosperms
Order :- Fabales
Family :- Fabaceae
Genus :- Bauhinia
Species :- B. purpurea

Description:

Botanical name **:** Bauhinia purpurea
Kingdom :- Plantae
Common name : Purple bauhinia, orchid tree, camel's foot tree, butterfly tree
Hind : Kota, raktakanchan, khairwal, karar, kanchan
Malay : Tapak kuda
Nepali : Tanki
Spanish : Pie de cabra
Thai : Sieowaan, sieo dok daeng
Trade name : Kachan, karar, khairwal

MATERIAL AND METHOD

Collection and identification of plant

Plant Bauhinia purpurea species of flowering plant in the family fabaceae. was collected from sub forest office Shahapur during the month of Sept – Feb. The flowers were dried under shade away from direct sunlight. The dried flowers were cleaned and coarsely powered in grinder and powder materials was passed through mesh 120 mesh to remove fine powdered and coarse powder was used for extraction.

Pharmacognostic Investigation of Bauhinia purpurea

Organoleptic/Macroscopic evaluation

Colour : Purple

Odour : Scent odour

Taste : Fragrant

Texture : Coarse

Fig.1: Bauhinia purpurea tree.

Fig.2: Bauhinia purpurea Flower.

Fig.3: Bauhinia purpurea leaf.

Fig.4: Bauhinia purpurea seeds.

Standardization of Bauhinia purpurea L.

The evaluation of crud drug involves the determination of identity, purity and quality. Purity depends upon the absence of foreign matter whether organic or inorganic. The following standardization parameter were evaluated to obtain the qualitative information about purity and quality of Bauhinia purpurea. The result are shown in table.[1]

Determination of foreign organic matter

A thin layer of five grammes of air dried, coarsely powdered medication was applied. The material was examined with either the naked eye or a 6X lens. Manual separation was used to

remove the foreign material as fully as feasible. From the weight of the substance consumed, the proportion of foreign organic materials in the sample was calculated (Indian pharmacopoeia 1996**).**

Determination of moisture content

Accurately weighed glass stoppered, swallow weighing bottle and dried 2 gm of sample was transferred to the bottle and cover, the weight was taken and sample was distributed evenly and poured to a depth not exceeding 10mm then loaded was kept in the oven and stopper was removed. The sample was dried to constant weight. after drying it was collected to a room temperature in a desicator weigh and calculated loss on drying in terms of percentage (w/w) (Indian pharmacopeia 1996). Determination of Physical evaluation.

Determination of total ash value

Figuring out what remains after incineration. The quality and purity of crude drugs are assessed using the ash value. Inorganic radicals including phosphates, carbonates, and silicates of sodium, potassium, magnesium, and calcium are found in ash value. Sometimes the total ash value of the crude medication is influenced by inorganic factors such the calcium oxalates, silicon, and carbonate content. Such variables are eliminated by treatment with acid, after which the amount of acid-soluble ash is calculated.

1Determination of total ash value

A tared silica crucible was filled with precisely weighed 3gm of air dried powdered medication, which was then heated to a dull red temperature until it was carbon-free. weighed after cooling, repeated for a consistent value. The proportion of the total ash was then determined using the air-dried medication as a reference.

2. Determination of acid insoluble ash value

The ash obtained as dried under total ash was boiled with 25ml of 2N HCl for 5 minutes. The insoluble matter was collected on an ash less filter paper, washed with hot water ignited and weighed, then calculated the percentage of acid insoluble ash with reference to the air dried drug.

3. Determination of water soluble ash value

The total ash obtained was boiled with 25ml of water for 5 minutes. The insoluble matter wascollected on an ash less filter paper, wash with hot water and ignited for 15 minutes at a

temperature not exceeding 450 degree Celsius The of water insoluble matter was subtracted from the weight of total ash. The difference in weight represents the water soluble ash. The percentage of water soluble ash was calculated with reference to the air dried drug.

Determinaton of extractive Values

1. Determination of alcohol soluble extractive value

In a closed flask, 5 gm of the air-dried coarse powder of the plant material was macerated for 24 hours with 100 ml of 90% ethanol, stirring regularly for the first 6 hours and letting stand for the remaining 18. After that, it was quickly filtered while taking steps to prevent solvent loss. 25 ml of that filtrate were evaporated to dryness in a shallow dish with a flat bottom, dried at 105 ° C, and weighed. With reference to the air-dried medication, the percentage of ethanol soluble extractive value was computed.

2. Determination of water soluble extractive value

Macerate the 5 gm of coarsely powdered medication for 24 hours in a closed flask with 100 ml of chloroform water, stirring regularly for the first 6 hours, then letting stand for the remaining 18. After that, it was quickly filtered while taking steps to prevent solvent loss. 25 ml of the filtrate was then dried out by evaporation in a shallow dish with a flat bottom, dried at 105 ° C, and weighed. According to the air dried medication, the proportion of water soluble extractive was estimated.

MATERIAL AND METHODS

Collection and identification of plant

Bauhinia purpurea Linn is a species of flowering plant in the family fabaceae**.**

Were collected from sub forest office Shahapur during the month of Sept – Feb.

The flowers were dried under shade away from direct sunlight. The dried flowers were cleanedand coarsely powered in grinder and powder materials was passed through mesh 120 mesh to remove fine powdered and coarse powder was used for extraction.

Preparation of Plant extract

The powdered flower material of *Bauhinia purpurea* linn was subjected to successive solvent extraction with Methanol. 10gm of powdered flower material was subjected to soxhlet extractionfor about 10 hours with 250 ml of the Methanol solvent. The extracts obtained were later kept for distillation to remove the excessive solvent. These extracts were mixed and dried. The aqueous extract was fractioned by using different solvents like ethyl acetate and

hexane andthese extracts were stored in a cool and dry place.

Table 1: Preliminary phytochemical screening of extracts.

Test	Aqueous extract	Methanolic extract
Test for Alkaloids	++	++
Test for amino acid & proteins	+	+
Test for carbohydrates	+++	++
Test for flavonoid	+++	+++
Test for saponin	++	+
Test for glycoside	+++	++
Test for steroid & sterol	+++	+++
Test for terpenoids	+	++
Test for tannins & phenolic compound	+++	+++
Test for volatile oil	+++	++

"+ Slight changes, ++ moderate, +++ stronger reactions,"

Pharmacological study

The extracts of flower of *Bauhinia purpurea* linn exhibits moderate to significant antihelmintic activity at the dose of 50-250 µg/ml. The results of phytochemical analysis were shown in Table All the extracts were tested for antihelmintic activity, piperazine citrate was employed as reference standard. It has been observed that all the tested extracts showed mild to moderate antihelmintic activity. Extracts of flower o*f Bauhinia purpurea* linn was found to be most active agents among the extracts. Also aqueous extract of flower of *Bauhinia purpurea* linn was showing good antihelmintic activity.

1.Worm collection and authentication

Indian earthwarm pheretima posthuma (Annelida) were obtained from the soil that had been submerged in water, with an average earthwarm size of 6 to 8 cm. To eliminate any dirt that had adhered, they were rinsed with tap water. Pheretima posthuma, an adult Indian earthworm, used as a test subject for the anthelmintic activity (Annelida). It mimics the human intestinal round worm parasite physically and physiologically. Japanese earthworms.

Anthelmintic Assay

Six Indian earthworms were released in each of five groups of roughly similar size into 10 ml of the appropriate mixture. Each group received one of the following treatments: (1% gum acacia in regular saline) Vehicle. Piperazine citrate (30 mg/ml), methanolic extract (50, 60, 70, 80, 90, & 100 mg/ml), and aqueous extract (10, 30, 50, 70, 90, & 100 mg/ml) in common

saline with 1% gum acacia. After observations for the paralysis time (PT), observations for the death time were made (DT). No movement of any kind could be seen during the paralysis period, except when the worms were violently disturbed. After determining that worms did not move when shook forcefully or dunked in warm water, the time of death was recorded.

S. No	Extract	Time taken for paralysis (min)				Time taken for death (min)			
		Dose (µg/ml)				Dose (µg/ml)			
		50	75	125	250	50	75	125	250
1	AQE	4.66± 0.81	3.3±1.03	2.5±0.54	0.52± 0.34	65±0.89	57.5±1.04	42.5±1.64	14±0.89
2	MeOH E	3.5 ±1.04	3.0±0.63	2.33±516	1.02±1.75	60.83±0.75	52.33±0.816	37±1.41	9.5±0.83
3	EtOAc E	4.88±0.75	2.5±0.54	2.6±1.03	0.49±0.27	58.33±0.81	53.55±0.75	28.66±1.03	7.33±1.03
4	Hex E	5.8 ± 0.75	2.66±0.516	2.33±0.516	0.82±0.816	62.5±1.04	59.6±1.21	50.66±0.86	47±0.89
5	Piperazine citrate	3.55±0.56	2.1±0.59	1.9±0.48	0.32±1.03	48.2±0.59	50.05±1.08	24.55±52	5.22±1.1

Results expressed as Mean + SEM

CONCLUSION

Bauhinia purpurea linn is a plant that has shown potential as a source of chemotherapeutic compounds. The present study, therefore investigate the phytochemical constituents of extracts of flower of *Bauhinia purpurea* linn by extraction. The results obtainedin the present study clearly indicate that the both aqueous and methanolic extract of *Bauhinia purpurea linn* are having potent phytochemicals. From the investigational reports indicate that the anti-helmintic activity of ethyl acetate and methanolic extracts of *Bauhinia purpurea* linn showed significant action towards Indian earth worms. Further research is needed to fractionate the ethylacetate, methanolic extracts and isolate the molecule(s) responsible for biological activity.

RESULTS AND DISCUSSION

Methanolic and aqueous extract of flowers of Bahunia purpurea Linn was screened foe Anthalmintic activity. Pheretima posthma worms are easily available and used as a suitable model foe screening anthelmintic activity. Piperazine citrate was used as reference standard with distilled water as a vehical control. The mean and SEM were analysed followed by ANNOVA by Dunnett's test, $P<0.05$ being considered as significant.

ACKNOWLEDGMENTS

We are grateful to the principal of Amrutvahini college of pharmacy, sangamner for providing the facilities for conducting this research. Also are thankful to the Dr.D.P.Hase, Dr.Khyade M.S, Head of Botanical survey of D.J.Malpani college of Sangamner, District A.Nagar for the identification and authentication of plants.

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