



Research Journal of Pharmaceutical, Biological and Chemical Sciences

Preliminary physico-phytochemical study of the leaves parts of *Hygrophila difformis Blume*.

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ABSTRACT

Hygrophila difformis Blume (Family-Acanthaceae) and has great medicinal importance like An antibacterial activity, high insecticide activity and Tribal's are also used as anticoagulants. It is very useful in tropical fresh water aquarium plant and Environmental importance Ornamentals plants. In present study deals with the characterization of morphological features, determination of physical constant such as the total ash value, acid insoluble ash value and water soluble ash value were 1.97%, 0.59%, 1.37% respectively. Loss of weight drying was 4.5%, the percent yield for ethanol 9.12% and aqueous 5.45%,

Keywords: *Hygrophila difformis* Blume, Acanthaceae, Cardiac glycosides, tannins, steroids.

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INTRODUCTION

Since diseases have co-existed with life, the study of diseases and their treatment now a day's ethno-botany is important part of our ancient plant worldwide. This helps to getting increase knowledge of medicinal plants No report was found regarding Preliminary physico-phytochemical study activity of *H. difformis* till the date. Keeping this view a Preliminary physico-phytochemical study of the leaves parts of *Hygrophila difformis* Blume (Family-Acanthaceae) along with phytochemical study have done. It is commonly known as water wisteria. It is a tropical aquarium plant used as environmental ornaments. It rapid growth helps prevention of algae. The plant grows to a height of 20-50 cm with a width of 15-25 cm, and slender lacy leaves and upright growth. It is found in marshy habitats on the Indian subcontinent including Bangladesh, Bhutan and Nepal. Hygrophiloside was found in the aerial parts of *Hygrophila difformis*. It is an iridoid glucoside [1], having hepatoprotective activity [2]. On preliminary phytochemical analysis Cardiac glycosides, tannins, steroids, flavonoids and saponins were found. It is used as coagulant by tribal people [3]. The aerial parts of the plant showed good antioxidant property [4]. Ethanolic extracts of aerial parts of the plant shows CNS depressant activity along with analgesic activity in mice [5]. Aerial parts of the plant also show anthelmintic activity [6].

Standardization of herbal drugs are difficult because generally mixture of constituents and the active constituent in most cases is unknown. Now the present study deal the standardize leaves of *Hygrophila difformis* Blume.

MATERIALS AND METHODS

Aerial parts of *H. difformis* were collected from fields of Kanakpur, District of East Midnapur, West Bengal, India in the month of December and authenticated by Dr. M.S. Mondal, a taxonomist and Additional Director, Central National Herbarium, Botanical Survey of India, Howrah, West Bengal, India. A voucher specimen has been preserved in Department of Pharmaceutical Chemistry, Seemanta Institute of Pharmaceutical Science, Jharpokharia, Orissa, India for future reference (Voucher specimen no. CNH/1-I (315)/2009-Tech II/357). The aerial parts were dried under shade and powdered (40 mesh size) and stored in airtight containers. The macroscopic characters were studied as per given procedure in WHO guidelines [7]

Physicochemical Studies

The loss of drying, ash value (total ash, acid insoluble ash, water soluble ash [8], extractive value (petroleum ether, benzene, chloroform, ethanol and water), were determined according to the official methods of Ayurvedic Pharmacopoeia of India [9].

Extraction Method

The powdered plant material was successively extracted with petroleum ether (40-60°C), and the marc was successively extracted with benzene, chloroform, ethanol respectively

in a series using a Soxhlet extractor. The extracts were concentrated to dryness in vacuum individually to get petroleum ether extract (PEHD), benzene extract (BEHD), chloroform extract (CEHD), ethanol extract (EEHD), aqueous extract (AEHD) respectively. The yield of petroleum ether, benzene, chloroform, ethanol extracts were 3.28, 2.58, 1.98, 9.12, 5.45% w/w respectively.

RESULT AND DISCUSSION

The macroscopical study of the leaves of *Hygrophila difformis* Blume. was done. The leaves were light green in colour smooth and often slender lacy leaves and upright growth, variable shape and bitter in taste (Table-1). The values of the physical constant like ash values, loss on drying, extractive value were determined. Extractive value and color of extract is investigated (Table-2). Preliminary qualitative phytochemical screening had shown that presence of Cardiac glycosides, tannins, steroids, flavonoids and saponins (Table-3).

Table-1: Macroscopical evaluation of *Hygrophila difformis* Blume. leaves

S.No	Feature	Observation
1	Color	Greenish
2	Odour	Characteristic
3	Taste	Slight bitter
4	Shape	Variable

Table-2: Physicochemical analysis of *Hygrophila difformis* Blume. leaves

S.NO	Solvent	Weight of plant material (gm)	Percentage of yield(%)	Colors of extract
1	Pet.ether	200	3.28	Yellowish Brown
2	Benzene	200	2.58	Blackish Brown
3	Chloroform	200	1.98	Blackish Brown
4	Ethanol	200	9.12	Blackish
5	Aqueous	200	5.45	Blackish

Table-3: Phytochemical screening of *Hygrophila difformis* Blume. leaves

Sl. No.	Test	Pet. Ether Extract	Benzene Extract	Chloroform Extract	Ethanol Extract
1.	Alkaloids	-	-	-	-
2.	Cardiac glycosides	+	+	+	+
3.	Tannins	-	-	+	+
4.	Steroids	+	+	+	+
5.	Flavonoids	-	-	+	+
6.	Saponins	-	-	-	+

(+)- present, (-)-absent



CONCLUSION

Preliminary physico-phytochemical study of the *Hygrophila difformis* Blume study concluded to macroscopic, other physical values and parameters will help to identify the species of plant, phytochemical screening will help the presence of compounds, which is responsible for the medicinal importance of the plant. *Hygrophila difformis* Blume. is known as wide range of medicinal value, it helps to identification, authentication and standardization. It also require to research on phytochemical and pharmacological aspect. However research going on it would be easier to develop new drugs.

ACKNOWLEDGEMENT

Authors sincerely thanks to Dr. Ashok kumar, principal, Pharmacy College, Itaura, Chandeshwar, Azamgarh 276128, Uttar Pradesh

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