



**PHYTOCHEMICAL SCREENING OF METHANOLIC EXTRACTS OF
PODOPHYLLUM HEXANDRUM ROYLE AND
RHEUM EMODI WALL**

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(Received : 16.03.2012; Accepted : 02.04.2012)

ABSTRACT

Methanolic extracts of the two medicinal plants *Rheum emodi* and *Podophyllum hexandrum* were assessed for phytochemical components. The results revealed that both the plant extracts contained glycosides, flavonoids, saponins and terpenes. Alkaloids were present at low quantity in *Rheum emodi* but were absent in *Podophyllum hexandrum*. The absences of carbohydrates were detected in both the extracts. Proteins were present in low quantity in *Rheum emodi* but abundantly present in *Podophyllum hexandrum*.

Key words: Phytochemical screening, Methanolic extracts, *Podophyllum hexandrum*, *Rheum emodi*.

INTRODUCTION

Plants are rich in a variety of secondary metabolites such as tannins, terpenoids, alkaloids, flavonoids, phenols, steroids, glycosoids, and volatil oils¹. It is necessary to identify the phytochemical components of local medicinal plants usually employed by herbalists in the treatment of diseases. In addition investigations into antimicrobial activities of local medicinal plants will expose the plants as potential sources of therapeutic agents². The volatile oils of black pepper (*Piper nigrum*. L.) were assessed for antibacterial activity. The antibacterial and antifungal activities of *Zanthoxylum budrungia* has been reported³. The use of chemotherapeutic agents in the treatment of infectious diseases has been known from time immemorial. The ancient man discovered the therapeutic value of some herbs by trial and error⁴. The alternative use of folkloric medicinal plants detailed their alternative use in medicine in Jamaican society has been studied⁵.

The aims of present study is to identify the phytochemical components of methanolic extracts of *Podophyllum hexandrum* and *Rheum emodi*. *Podophyllum hexandrum* grows wild in the interior Himalayan ranges of India. The traditional medicinal uses of *Podophyllum hexandrum* is in the treatment of colds, constipation, septic wounds, burning sensation, erysipelas, mental disorders, plague, allergic and

inflammatory conditions of the skin, cancer of brain, bladder and lung, Hodkins disease and non- Hodkins lymphoma^{6,7}. *Rheum emodi* is a leafy perennial herb distributed in altitudes ranging from 2800 m to 3800 m in the temperate and subtropical regions of Himalayas from Kashmir to Sikkim in India. It has been traditionally used to treat pathological ailments like fevers, ulcers, bacterial infections, fungal infections, Jaundice and liver disorders⁸⁻¹⁰.

EXPERIMENTAL

Material and methods

The rhizomes of both the plants *Podophyllum hexandrum* and *Rheum emodi* were identified and collected from Gulmarg area of J & K. The plant parts were shade dried for some days and ground into powder with the help of an electric grinder and latter stored in air tight bottles for further use. 50 g of each powdered plant materials was filled in the thistle funnels of two separate Soxhlet extractors and extracted with 250 mL 99% methanol (MERCK) up to 48 hours.

Phytochemical Screening

Standard methods^{11,12} were used for preliminary phytochemical screening of methanolic extracts, to know the nature of phyto constituents present in it.

RESULTS AND DISCUSSION

Results in Table 1 showed that both the plant extracts contain glycosides, flavonoids, saponins and terpenes. Alkaloids are present at low quantity in *Rheum emodi* but absent in *Podophyllum hexandrum*. The absence of carbohydrates were detected in both the extracts but proteins were found in low quantity in *Rheum emodi* in contrast to *Podophyllum hexandrum* were proteins were found abundantly. Tannins and phenolic compounds are present in low quantity in both the plant extracts.

Table 1: Phytochemical screening of methanolic extracts of *Podophyllum hexandrum* and *Rheum emodi*

Phyto constituents	<i>Rheum emodi</i>	<i>Podophyllum hexandrum</i>
Detection of Alkaloids		
a. Mayer's test	+	-
b. Wagner's test	-	-
c. Dragandraff's test		-
Detection of Carbohydrates		
a. Molish test	-	-
b. Benedict's test	-	-
Test for Glycosides (Keller-killiani test)		
	+	+
Test for Flavonoids		
a. Lead acetate test	+	+
b. Alkaline reagent test	+	+

Cont...

Phyto constituents	<i>Rheum emodi</i>	<i>Podophyllum hexandrum</i>
Test for saponins		
a. Foam test	+	+
b. Froath test	+	+
Test for Terpenes		
a. Salkowski reaction	+	+
Test for proteins		
a. Biuret test	+	+
b. Xanthoprotein test	-	+
Test for Tannin and Phenolic compounds		
a. 5% fecl ₃ solution	+	+
b. Lead acetate solution	-	+
c. Gelatin solution	+	-
+ Positive, - Negative		

ACKNOWLEDGEMENT

The authors grateful to Dr. R. M. Tiwari, Pricicipal, Govt. NMV, Hoshangabad (M.P) for providing necessary facilities during this research work. The authors are very thankful to CMBT (Bhopal) for providing full assistance and encouragement.

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