

## RESEARCH ARTICLE

# Ethnomedicinal and phytochemical studies on *Dryopteris cochleata* (Han, ex.D.Don) C. Chr.

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### SUMMARY

The present paper deals with the ethnomedicinal and phytochemical analysis of *Dryopteris cochleata*. This is an important ethno-medicinal plant. The extraction of alkaloid from *Dryopteris cochleata* was done by hot maceration method in solvent Methanol. The decoction prepared from plant parts, is used by tribal people for curing many diseases like rheumatism, epilepsy, leprosy etc.

**Key Words :** Ethnomedicinal, Phytochemical, Dryopteris

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Study area Ranchi district, capital of Jharkhand is located at 23.23 N latitude and 85.23 E longitude and comprises an area of 7574 sq.km. The area is dominated by tribal population. Tribal people have their own custom culture and medicinal practices. They can use different type of plant for curing different diseases including the pteridophytes.

The genus *Dryopteris* includes 250 species distributed north temperate, tropical and subtropical regions of the world. The genus is very common in India and frequently found at hill tops. *Dryopteris* is frequently used by tribal people in case of snake bite. Paste of the

plant is also applied on the bite wound to prevent infection. juice of root is given to treat amoebic dysentery.

### MATERIAL AND METHODS

Climatic condition of Ranchi district is favourable for the growth of pteridophytic vegetation. The pteridophytic vegetation is at its best in both variety and growth during the rainy season. The rainy season is generally followed by a short dry period with scanty rain and low temperature. Plants were collected with their basal portion and sori.

For phytochemical evaluation plants were collected and dried in shade. To make powder dried plants were grinded in mixture. The powder analysis of drug was done by means of colour odour and test evaluation of

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powder. Physical evaluation of plant was done by calculating the moisture content, ash value, extractive value and Rf value, by the method proposed by kokate and purohit, 2003: Pharmacognosy.

The extract obtained by exhausting crude drugs are indicative of approximate measures of their chemical constituents. The extraction of plant material was done in the solvent having high extractive value. Extraction was done by the hot maceration method.

Extract obtained by hot maceration method was used for chemical test analysis which detect the presence or absence of phytochemical compounds and in

chromatography. The entire chemical tests were done by the conventional methods proposed by Bhattacharjee and Das 1969.

## RESULTS AND DISCUSSION

Moisture content of plant was found 3.07 and ash value was 4.75%. extractive value was high in solvent Methanol. So, the extraction of plant material was done in solvent Methanol. Now this extract is used for chemical test which is detected the presence of Alkaloid, Tannin, Saponin and absence of Steroid and Reducing sugar. Rf of plant was 0.63.

**Table 1: Moisture content**

No. of observation	Initial weight of fresh leaf	Final weight of material after drying	Difference	Moisture content
1.	5 g	1.85g	3.15g	
2.	5g	1.99g	3.01g	3.07%
3.	5g	1.94g	3.06g	

**Table 2 : Ash value**

No. of observation	Initial weight of material	Final weight of material after drying	difference	Ash value
1.	5g	0.21g	4.79g	
2.	5g	0.23g	4.70g	4.75%
3.	5g	0.22g	4.78g	

**Table 3: Extractive value**

Solvent	Initial weight of beaker	Weight of extract	difference	Extractive value
Ethanol	29.99g	30.14 g	0.15g	3.0%
Benzene	27.30g	27.44 g	0.14g	2.8%
Methanol	27.89g	28.24 g	0.35g	7.0%

**Table 4 : Chemical group test**

Experiment	Observation	Inference
For Alkaloid 3ml of extract+ few drop of Wagner's reagent	Orange brown ppt. formed	Alkaloid present
For Flavonoids Extract+shulphuric acid 10%, cooled chloroform + 1ml dilute sodium carbonate	Yellow coloured appeared	Flavonoid present
For Steroid Extract+ conc H <sub>2</sub> SO <sub>4</sub> + Chloroform	Dark green colour appeared	Steroid absent
For reducing sugar Extract+Fehling's solution (1) and (2)	Brown and dark green colour appeared	Reducing sugar absent
For Tannin Extract + 10% aques potassium dichromate	Yellow brown ppt. formed	Tannin present
6. for Saponin Powdered drug is shaken with water	Stable foam formed	Saponin present

**Table 5 : TLC**

Solvent system	ratio	No. of spots	Solvent run	Solute run	Rf
Toluene : Water	98:2	5	11cm	7cm	0.63

*Dryopteris cochleate* is very common and frequently found everywhere in Ranchi. The plant is very popular among the tribal people. Whole plant is used as medicine. The whole plant extract is taken orally in case of snake bite. The paste of plant is applied on the infected area caused by bite wound to prevent infection. Powder of rhizome is used in case of rheumatism, epilepsy and in leprosy. Juice of root is very effective in case of amoebic dysentery. Powder of complete plant is used for expulsion of worms. Moisture content of plant was 3.07% and ash value was found 4.75%. extractive value was high in solvent methanol so the extraction was done in solvent Methanol. Chemical group test detects the presence of alkaloid, flavonoid, tannin and saponin. Rf of plant was 0.63.

Aspidinol, one of the most ordinarily occurring phloroglucinol derivatives was found in *Dryopteris* extract (Penttila *et al.*, 1969 and Bir, 2006). *Dryopteris* yield the drug filicin which is used as vermifuge. Various aqueous and alcoholic extract of plant parts of *Dryopteris cochleate* were tested against the growth of some human and plant pathogenic bacteria (Parihar *et al.*, 2006). A small portion of the rhizome of the plant is powdered and taken with water twice a day in rheumatism, epilepsy and leprosy. The plant extract is given orally in case of snake bite (Shah and Singh, 1990). Chemical constituents of plants which make it highly medicinal are oleoresin,

filicin, filicic acid, apsidiole and Tannin.

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