



QUANTITATIVE PHYTOCHEMICAL AND PHYSICOCHEMICAL PARAMETERS OF RHIZOMES OF *TECTARIA COADUNATA*

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Abstract:

Pteridophytes are one of the oldest and primitive vascular plant groups on the earth. *Tectaria coadunata* belongs to the family of Dryopteridaceae. *Tectaria coadunata* (Wall. Ex Hook & Grev.) C. Chr (Kukkutnakhi) is used by many Vaidyas in hyperlipidemic conditions and obesity. The dried extract of rhizomes of *Tectaria coadunata* has various bioactivities such as antioxidant, antimicrobial and anti-inflammatory. The physicochemical analysis includes Total Ash, Water soluble Ash, Acid soluble Ash and Total Ash. The quantitative phytochemical includes Total Tannin, Total Alkaloids and Total Flavonoids.

The present investigation was undertaken to study the presence of secondary metabolites, and physicochemical analysis from rhizomes of *Tectaria coadunata*.

Index Terms - *Tectaria coadunata*, Physicochemical and Quantitative Phytochemical analysis

I. INTRODUCTION

Since medicinal plants constitute the foundation of traditional medicine, more than 3.3 billion people in less developed nations regularly use them (Davidson, 2000). 80% of people use medicinal herbs as their only source of medication, particularly in poor nations. The use of medicinal plants is quite widespread, and it is generally believed that herbal medications are less expensive, safer, and less likely to have adverse effects than synthetic medications.

One of the key therapeutic plants is Pteridophytes *Tectaria coadunata* (J. Smith) C. Chr. Children's gastrointestinal illnesses, stomach discomfort, and anthelmintic activity is all treated using *T. coadunata* rhizome. Insect bites and other ailments can be treated with fresh rhizome and frond. On the basis of number of applications of Rhizomes of *Tectaria coadunata*, this plant was taken for the present study.

II. RESEARCH METHODOLOGY

I- MATERIAL AND METHODOLOGY

The fresh rhizomes of *Tectaria coadunata* plants were collected in the months of January from Kolhapur district. The obtained samples were taken to a lab for further evaluation. The young rhizomes were properly scrubbed and frequently rinsed with tap water. The cleaned rhizomes were then allowed to air dry at room temperature, pulverised into powder, and stored in readiness for further study.

II- QUANTITATIVE PHYTOCHEMICAL ANALYSIS

The plant material was analyzed for the Total Alkaloids, Total Tannin and Total Flavonoid using the standards methods (Obadoni et.al, 2001, Harborne JB, 1973, Boham et.al 1994 and Van-Burden et.al 1981)

III- PHYSICOCHEMICAL ANALYSIS

Physicochemical analysis includes Total Ash, Water insoluble Ash, Water soluble Ash, Acid insoluble Ash and Loss on drying as per Standards methods (Gupta, et.al 1984, The Indian Pharmacopoeia et.al 1996, Ahmad and Sharma et.al 2001, Gupta et.al 2013 and Indrayan et.al 2005)

IV- RESULTS AND DISCUSSION

Table 4.1. Quantitative Phytochemical Analysis of Rhizomes of *Tectaria coadunata*

Part of Plant	Total Alkaloid	Total Tannin	Total Flavonoid
Rhizomes	0.415	1.02	0.347

The quantitative phytochemical analysis was presented in Table 4.1. The quantitative phytochemical includes Total Tannin, Total Alkaloids and Total Flavonoids. The value of Total Tannin was found to be 1.02 mg/100 gm dry weight. Total Alkaloid was present in 0.415 mg/100 gm dry weight. The amount of Total Flavonoids was recorded 0.3479 mg/100 gm dry weight.

Table 4.2. Physico-chemical Analysis of Rhizomes of *Tectaria coadunata*

Total Ash	Water insoluble Ash	Water soluble Ash	Acid insoluble Ash	Loss of Drying
0.038	0.008	0.030	0.009	0.085

The physicochemical parameters was calculated and shown in Table 4.2. Total Ash, Water insoluble Ash, Water soluble Ash, Acid insoluble Ash and Loss on drying The Total ash was found to be 0.038. The Water soluble ash was recorded as 0.030.

From above results we have conclude that, the rhizomes of *Tectaria coadunata* contains Alkaloids, Tannin and Flavonoid in large amount. Hence it is a Golden opportunity to young researcher to isolate the particular Alkaloids from Rhizomes of *Tectaria coadunata*.

V- REFERENCES

- [1] Davidson-Hunt 2000: Ecological ethno botany: stumbling toward new practices and paradigms. MASA J.16:1-13.
- [2] Obadoni BO, Ochuko PO, 2001. Phytochemical studies and comparative efficacy of the crude extracts of some homeostatic plants in Edo and Delta states of Nigeria. Global J. Pure Appl. Sci., 8: 203-208.
- [3] Harborne JB, 1973. Phytochemical Methods: A guide to modern techniques of plant analysis. Chapman and Hall. New York, pp. 279. 3rd Edition.
- [4] Boham AB, Kocipai AC, 1994 .Flavonoid and condensed tannins from leaves of Hawaiian Vaccinium Vaticulum and Vicalcinium. Pacific Sci. 48: 458 -463
- [5] Van-Burden, T and Robinson, W, 1981. Formation of complexes between protein and Tannin acid. J. Agric Food Chem. 1:7
- [6] Gupta, S., 1984. The Ayurvedic system of medicine occurring in Charka, Sushruta. Neeraj Publishing House, New Delhi, India, Vol-II
- [7] The Indian Pharmacopoeia, 1996. The controller of publication, Delhi (CSIR) Vol-2, Part II.
- [8] Ahmad, R.V. and Sharma, R.K., 2001. Evaluation of drug for standardization. Proceedings of WHO training cum-workshop, Pharmaceutical lab for Indian medicine, Ministry of health and family welfare, Govt. of India, Ghaziabad
- [9] Gupta, A.K., 2003. Quality standards of Indian medicinal plants. Indian Council of Medical Research, India Vol-I.
- [10] Indrayan, A.K., Sharma, S., Durgapal, D., Kumar, N. and Kumar, M., 2005. Determination of nutritive value and Analysis of mineral elements for some medicinally valued plants from Uttaranchal. Current Sci 89, 1252-1255.