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Some Pharmacognostical Characteristics of Tragia Involucrata Linn. Roots.

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ABSTRACT: *The macroscopical characters of the roots, physical constant values, extractive values, colour, consistency and extractive values with different solvents, behaviour on treatment with different chemical reagents, fluorescence characters of liquid extracts and root powder after treatment with different chemical reagents under ultraviolet light of the powdered roots of Tragia involucrata Linn. (Fam Euphorbiaceae) were studied to fix some pharmacognostical parameters which will enable the future investigators for indentification of the plant. Preliminary phytochemical study on different extracts of the roots were also preformed.*

INTRODDUCTION

Tragia involucrate Linn. (Family-Euphorbiaceae) is a perennial, evergreen twiner, more or less hispid herb wit scattered stining hairs found in dry places throughout India ascending upto 750m from the Punjab and the lower himalaya of kumaon eastwards to Assam and Burma, southwards to Travencore and Ceylon [1,2,3,4.] The plant is also found in N, circars, deccan, carnatic, the western ghats and kerals[5.]

The roots of *T. involucrate* is popular for various medicinal uses in the indigenous system of medicine. The roots are bitter, acrid, sweet, cooling possessing diuretic, diaphoretic, antiperiodic, depurative and alterant activity. They are useful in pruritic skin eruptions, venereal diseases, haeorrhoids, gastropathy, guinea worms, blood impurities, dipsia, vomiting giddiness, vitiated conditions of pitta, melalgia and brachialgia[3].

The root is considered diaphoretic and alterative; an infusion is given in ardent fever and infection of skin. The root is also given when the extremities are cold during fever; also for pains in the legs and arms. The root also forms the basis of an external application in leprosy [1,2,7]. The root is also used in old venereal complaintrs and a blood purofoer[4.]

The root system forms the official part inAyurveda.[8] The important formulations using the drug are Duralabharistam, Dasamularistam and Rasnadikasayam[5]. The drug is also found to be useful in siddha system of medicine (Cirukancnri ver)[6.]

The present investigation investigation deals with the studies on some important pharmaco-gnostical characteristics of the roots as a whole and its powdered form.

MATERIALS

Plant Material:

The roots of *T. involucrate* were collected from young matured plants from salipur, cuttack district of orissa during the month of

April-may 1999. the plant material. Was indentified and authenticated. A herbarium of the plant is preserved in the department of Pharmacognosy of the institutes for future reference.

The collected roots were washed with tap water to remove adhering dust, followed by rinsing with distilled water, shade dried, powdered and used for the study.

CHEMICALS:

All the chemicals used were of analytical grade obtained form s.d Fine –Chem. Ltd., Bombay, Toms Baker, Mumbai, Qualigens Fine chemicals, Mumbai and Bengal Chemicals & Pharmaceuticals Ltd., Calcutta.

METHODS

The macroscopic characters of the roots were observed[9]. The ash values ethanol soluble and water soluble extractive values of roots were determined as per the Indian pharmacopoeial methods[10]. Other extractive values were determined by extracting the plant material successively by soxhlet extraction apparatus wit various solvents with increasing order of polarity vi petroleum ether (60-80^{o}C), Chloroform, Ethyle acetate, methanol and water. The dried extractives were obtained after evaporation of the solvents under reduced pressure. The behaviour of the powdered roots with different chemical reagents were studied and the fluorescence charcteristics were also observed under ultraviolet light at short and long wavelenghts[11.] The fluorescence. Characteristics of a;; the successive liquid extracts were studied under ultraviolet light preliminary phytochemical tests of different extracts were performed b using specific reagents[12,13.]

RESULTS AND DISCUSSION

The macroscopic characters are reported in Table No.1. The physical constant values include total ash, water soluble ash and sulphated ash are reported in Table No.2 The water soluble extractive and ethanol soluble extractive values are reported Table No.3. The water soluble extractive value was found to be more than ethanol soluble extractive.

The colour, consistency and percentage extractive values after successive extraction are reported in Table No.4 The water extract sows maximum extractive value ethyl acetate extract shows the minimum. The results of preliminary phytochemical tests show the presence of phytocostituents in different extracts in Table No 5. The fluorescence characteristics of different liquid extracts is reported in Table No. 6. Te behaviour of drug powder with different chemical reagents and their fluorescence characteristics under ultraviolet light is reported in Table No. 7. and 8 respectively

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Table no 1. Macroscopical characters of *T. involucrate* Linn. Roots.

Colour	-	Grey	
Dimensions	-	Length	- 4.5cm to 28.5cm
		Width	- 0.1cm to 1.8cm
Shape	-	Cylindrical, tortuous	
Branching	-	Tap root branching	
Rootlets	-	Present, of true kind, thick and wiry. Rootlets are scattered profusely in the soil around the main root.	

Direction of growth	-	Vertical (Positively geographic)
Surface characters	-	Lenticles
Texture	-	Fibrous
Fracture	-	Fibrous
Odour	-	Pungent
Taste	-	Pungent

Table No 2. Ash values of *T. involucrate* Linn Roots.

Type of Ash	**Percentage (w/w)**
Total ash	9.73
Acid insoluble ash	2.73
Water soluble ash	2.23
Sulphated ash	12.16

Table No 3. Extractive values of *T. involucrate* Linn Roots.

Type of Extractive	**Percentage (w/w)**
Water soluble extractive	4.08
Ethanol soluble extractive	2.16

Table No 4. Colour, consistency and extractive values of T. involucrata linn. Roots upon successive extraction .

Solvents	**Percentage of extractive (w/w)**	**Colour of extractive**	**Consistency of extractive**
Petroleum ether (60-80oC)	1.417	Yellowish green	Greasy
Chloroform	1.482	Deep brown	Greasy
Ethyl acetate	0.72	Yellowish brown	Greasy
Methanol	3.248	Reddish brown	Greasy
Water	4.251	Deep brown	Sticky

Table No5. Preliminary phytochemical tests for presence of phytoconstituents in T. involucrata Linn roots

Extract	**Alakloid**	**Reducing sugar**	**Tannin**	**Protein**	**Flavonoid**	**Sterols**	**Saponin**	**anthraquinone**
Petroleum ether (60-80^{o}C)	-	-	-	-	-	+	-	-
Chloroform	+	-	-	-	-	+	-	-
Ethyl	+	-	-	-	-	-	-	-

acetate								
Methanol	-	+	+	-	+	-	+	-
Water	-	+	+	+	+	-	+	-

+ Present, - Absent

Table No.6. Flouorescence characteristics of different liquid extracts under ultraviolet light.

Extract	Day light	Ultraviolet light	
		short	long
Petroleum ether (60-80oC)	Pale yellowish green	White	Greenish yellow
Chloroform	Pale yellow	White	Greenish yellow
Ethyl acetate	Pale yellow	White	Greenish yellow
Methanol	Brownish yellow	White	Greenish yellow
Water	Deep brown	Greenish white	Green

Table No 7. Colour of powdered roots of *T. involucrate* Linn. On treatment with different reagents.

Reagents	Colour of powder
Saturated Picric acid solution	Yellow
Nitric acid (specific gravity 1.42)	Pale yellow
Hydrochloric acid (specific gravity 1.16)	Pale yellow
Sulphuric acid (80%)	Black
Glacial acetic acid	Grey
Sodium hydroxide (5N aqueous solution)	Pale yellow
Lodine (N/20 aqueous solution)	Yellowish black
Ferric chloride (5% w/w aqueous solution)	Grey
Powder as such	Grey

Table No 8. Fluorescence characteristics of the powdered roots of *T. involucrata* linn. Under ultraviolet light.

Reagents	Ultraviolet light	
	short	long
Saturated Picric acid solution	Dark green	Pale green
Nitric acid (specific gravity 1.42)	Dark green	Pale green
Hydrochloric acid (specific gravity 1.16)	Pale brown	Pale green
Sulphuric acid (80%)	Black blue	
Glacial acetic acid	Grey	Pale green
Sodium hydroxide (5N aqueous solution)	Pale green	Pale green
Lodine (N/20 aqueous solution)	Black	Greenish black
Ferric chloride (5% w/w aqueous solution)	Black	Bluish black
Powder as such	Buff	Pale green

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