ISSN 0976 – 3333

Available Online at www.ijpba.info.

International Journal of Pharmaceutical & Biological Archives 2011; 2(3):960-962

ORIGINAL RESEARCH ARTICLE

Pharmacognostical and Preliminary Phytochemical Screening on Leaves of *Trianthema decandra Linn.*

Yamini K[*1], Anto Shering M[1], Praveen Kumar Reddy S[2], Lakshmi Narasimha Reddy N[2]

[1]*Department of Pharmacognosy, Mother Theresa Post Graduate And Research Institute of Health Sciences, Puducherry, India.*

[2]*Department of Pharmacy, Teegala Ram Reddy College of Pharmacy, Meerpet, Hyderabad, India*

Received 22 Apr 2011; Revised 04 May 2011; Accepted 12 Jun 2011

ABSTRACT

Phytochemical studies of the *Trianthema decandra*[1,2] Leaves were carried out in present study. Morphology of the plant, microscopy of the leaves. Total ash, acid insoluble ash, water insoluble ash and sulphated ash were 16.33%w/w, 3.33%w/w,4.00%w/w,2.35%w/w respectively. The extractive values i.e. Methanol, petroleum ether, n-Hexane, ethyl acetate, ethanol and aqueous extract were 40%w/v,8%w/v,20%w/v,12%w/v,10%w/v,20%w/v. The preliminary phytochemical studies were performed with various reagents and chemicals on plant methanolic extract in order to determine the various secondary metabolites. By performing the tests it was concluded that carbohydrates, protein, volatile oils, glycosides, saponins, flavanoids, alkaloids are present.

Key Words: Phytochemical screening, *Trianthema decandra Linn.*, Ash value, organoleptic properties.

INTRODUCTION:

Pharmacognostical study[1] is the preliminary step[2] in the standardization of crude drugs. The detailed pharmacognostical evaluation gives valuable information regarding the morphology, microscopical and physical characteristics of the crude drugs. Pharmacognostic studies have been done on many important drugs, and the resulting observations have been incorporated in various pharmacopoeias [1]. There are a number of crude drugs where the plant source has not yet been scientifically identified. Hence pharmacognostic study gives the scientific information regarding the purity and quality of the plant drugs.

Herbs, annual or perennial, subshrubs, or shrubs, succulent. Stems erect or prostrate. Leaves simple, rarely pinnate, mostly opposite, sometimes alternate, in many species fleshy, margin entire, rarely with teeth; true stipules absent, sometimes a stipule-like sheath present at base of petiole. Inflorescences terminal or seemingly axillary cymes, or solitary flowers. Flowers bisexual, rarely unisexual, actinomorphic, perigynous or epigynous. Nectaries separate or in a ring around ovary. Tepals (4 or) 5(8), connate below into a tube. Petals absent or present. Stamens 3 to many, free or connate at base, outermost often as filamentous staminodes; anthers dehiscing by longitudinal slits. Ovary inferior, syncarpous; carpels 2 to many; ovules 1 to many, on long funicles, mostly campylotropous; placentation axile or parietal, sometimes basal-parietal. Stigmas as many as carpels. Fruit a hygroscopic or circumscissile capsule, more rarely a berry or nut. Seeds with slender embryo curved around perisperm, rarely with an aril; endosperm scanty or absent.

About 135 genera and 1800 species: mainly in arid , subtropical regions, most species in South Africa, some in Australia and Western parts of the Americas, some pantropical ; three genera and three species in China. The family is divided into five subfamilies, of which two, Sesuvioideae and Tetragonioideae, are represented by native species in China.

MATERIALS AND METHODS

Collection Of Plant Material

***Corresponding Author:** Yamini K, **Email:**dr. yamini.pharma.scholar@gmail.com,**Phone No:** +91-9703649067

The plant of *Trianthema decandra* was collected from Dr.K. Madhava Chetty, Sri Venkateshwara University, Tirupathi on 11thJan 2011.

Preparation Of Extracts [3,4]

The leaves of the plant of *Trianthema decandra* was shade dried for 48 hrs. The dried leaves was powdered and weighed. It was then passed through 80 # mesh size individually. Finally it was packed in an air tight container and used for further studies. The dried leaves were then extracted with Methanol, petroleum ether, n-Hexane, ethyl acetate, ethanol and water successively to give Methanolic extract, petroleum ether extract, n-Hexane extract, ethyl acetate extract, ethanolic extract and aqueous extract. The extracts were collected separately and reduced to a small volume under reduced pressure and temperature and stored at 4°C for further use. The dried powdered plant material of *Trianthema decandra* was extracted with methanol using a soxhlet extractor at (70 – 75 °C) for 8 hrs. After exhaustive extraction, the collected methanolic extract was dried under reduced pressure using a rotator flask evaporator and it was kept under refrigerator. This methanolic extract[3] was used in further experiments.

Phytochemical Screening

The presence of various chemical constituents in plant extracts was determined by preliminary phytochemical screening [5,6] as described by Trease and Evans (1978).

DETERMINATION OF PHYSICO-CHEMICAL PARAMETERS [7]

The seeds of the plant were subjected for determination of physicochemical parameters like organoleptic evaluation, foreign organic matter, swelling factor, total ash value, acid insoluble ash value, water soluble ash value, determination of crude fibre, loss on drying[11,12], alcohol soluble extractive, chloroform extractive, water soluble extractives[9] and fluorescence studies (Chase and Pratt, 1949).

RESULTS AND DISCUSSION

Table 1:Organoleptic properties[7] of *Trianthema decandra*

Parameters	Inferences
Appearance	Powder
Color	Pale green
Taste	Bitter
Odor	Characteristic
Solubility	Insoluble in water and organic solvents
Size of fibres	Length: 800 µ - 992 µ - 1280 µ Width: 16 µ - 24 µ - 32 µ

Table 2: Microscopical stuides[8] of *Trianthema decandra*

Test	Observation	Inference
Phloroglucinol+ conc.HCl	Pink colour observed	Lignified cells, epidermal trichomes.
Dil.Iodine+ conc.H_2SO_4	Blue colour observed	Hemicellulose endospermic walls
Alc. Picric acid	Yellow colour observed	Aleurone grains present in the cells
Sudan red III	Red colour observed	Oil globules present in the cells of endosperm

Table 3: Determination of Ash Values[8,9] of *Trianthema decandra*

Parameters	(in % W/W)
Total ash	16.33
Acid insoluble ash	3.33
Water soluble ash	4.00
Sulphated ash	2.35

Table 4:Extractive values[9] of *Trianthema decandra*

Parameters	%W/V
n-Hexane	20
Petroleum ether	8
Ethyl acetate	12
Methanol	40
Ethanol	10
Water	20

Table 5:Loss on drying, crude fibre content and p^H of *Trianthema decandra*

Parameters	*Trianthema decandra*
Loss on drying (%w/w)	50
Crude fibre content (gm)	0.62
p^H 1 % w/v solution	3
p^H 10 % w/v solution	6

Table 6: Preliminary Phytochemical screening

Name Of The	Methanolic Extract
Carbohydrates	+
Gums Musilage	–
Protiens	+
Tannins and Phenolic	–
Steroids	–
Volatile oils	+
Glycosides	+
Saponins	+
Flavanoids	+
Alkaloids	+

'–' indicates absence of phytoconstituents
'+' indicates presence of phytoconstituents

CONCLUSION

The preliminary phytochemical studies were performed with various reagents and chemicals in order to determine the various secondary metabolites. By performing the test it was concluded that carbohydrates, protein, volatile

oils, glycosides, saponins, flavanoids, alkaloids are present.

REFERENCES

1. Devasagayam T.P.A., Kamat J.P., Sreejayan N. In: Antioxidant action of curcumin, *in Micronutrients and Health: Molecular Biological Mechanisms*. Nesaretnam K., Packer L., editors. AOCS Press; USA. 2001, 42-59.
2. Anonymous. *The Wealth of India.* Vol. 7. New Delhi: Publication and InformationDirectorate CSIR. 1997, 309-10.
3. Sir Desai, Vishwanathan N. "Herbal medicine: poisons or potions". *The journal of laboratory and clinical medicine*. 139 (6), 2002, 343-348.
4. Fabricant DS, Farnsworth NR. "The value of plants used in traditional medicine for drug discovery". *Environ. Health Perspect*. March 2001, 109 Suppl 1: 69-75.
5. Venkat Subramanian T.C. In: Foreword, *in Road Beyond Boundaries (The Case of Selected Indian Healthcare Systems)* Gautam V., Raman R.M.V., Prahalathan S., Ashish K., editors. Export-Import Bank of India; Mumbai. 2003, 7-9.
6. Gautam V., Raman R.M.V., Ashish K. Exporting Indian healthcare (Export potential of Ayurveda and Siddha products and services). *Road Beyond Boundaries (The Case of Selected Indian Healthcare Systems)* Export-Import Bank of India; Mumbai. 2003, 14-54.
7. Vaidya A.D.B. *Some principles and practices of Ayurveda in Selected Medicinal Plants of India.* Bhavan's SPARC; Mumbai. 1992, 365-370.
8. Dhuley J.N. Antitussive effect of *Adhatoda vasica* extract on mechanical or chemical stimulation-induced coughing in animals. *J. Ethnopharmacol.* 67, 1999, 361-365.
9. Grange J.M., Snell N.J. Activity of bromhexine and ambroxol, semi-synthetic derivatives of vasicine from the Indian shrub *Adhatoda vasica*, against *Mycobacterium tuberculosis in vitro*. *J. Ethnopharmacol.* 50, 1996, 49-53.
10. Barry V.C., Conalty M.L., Rylance M.L., Rylance H.J., Smith F.R. Antitubercular effect of an extract of *Adhatoda vasica*. Nature. 176, 1955, 119-120.
11. Raghunathan (1976). Pharmacopoeia Standards for Ayurvedic Formulations. Central Council for Research in Indian Medicine and Homeopathy, E-25, Defence colony, New Delhi.
12. Trease EG, Evans WC (1978). Pharmacognosy. 11th Edition, Balliere Tindall, London, pp. 115-222.