ejpmr, 2022, 9(11), 554-557

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

PHARMACIGNOSTICAL, PHYTOCHEMICAL AND INVITRO BIOLOGICAL EVALUATION OF THE LANTANA CAMARA LINN.

Beerappa*, Vivek Gowda V. A., Dilha C. Y., Nithin K. P. and Shivkumar B.

Bharathi College of Pharmacy Bharathinagara -571422 Maddur tq Mandya District Karnataka India.

***Corresponding Author: Beerappa**

Bharathi College of Pharmacy Bharathinagara -571422 Maddur tq Mandya District Karnataka India.

Article Received on 20/09/2022 **Article Revised on 10/10/2022** **Article Accepted on 30/10/2022**

ABSTRACT

India has a rich tradition of plant based knowledge in health care. Among the large number of herbal drugs existing in India, very few have been studied systematically so far. Lantana camara is an evergreen plant found throughout India. Traditionally it has been used in treating various ailments and they were supported by scientific data's. Various literatures have reported the phytoconstituents present in all parts of Lantana camara This study was conducted to determine the effect of Lantana camara extracts on urinary risk factors in normal subjects and urolithic patients. Modern treatment investigation for kidney stones are wrought with side effect, hence the need for alternative therapies such as plant based medicines. We have to documented through in vitro biological evaluation of plant Lantana camara (Zygophyllaceae family) possesses urolithiatic. To prepare experimentalkidney stones(calcium oxalate stones) by homogenious precipitation then preparation of semi-permeable membrane from farm egg, then to estimation of calcium oxalate bytitrimetry.

KEYWORDS: Lantana camara, Collection, Extraction, Phytochemical screening, Evaluation of anti – Urolithiatic activity.

INTRODUCTION

Figure 1: *Lantana camara* flower.

Figure 2: Fruit & Leaves of *Lantana camara*.

The lantana plant is known for its clustered form with an aromatic scent. Lantana flowers display bright tinges of yellow, red, pink and orange. The lantana camara belongs to family Verbenaceae.[1]

Taxonomical study

- Kingdom: Plantae
- Division: Tracheophytes
- Subdivision: Angiosperms
- Class: Eudicots
- Subclass: Asterids
- Order: Lamiales
- Family: Verbenaceae

Botanical description

Flowers surrounded by an involucre of bracts narrowly ovate, long from 5 to 7 mm, green. Floral pedicel 6 to 12mm long, corolla tube curved along 10 to 12 mm, with ascending hairs inside, opening in the top four rounded loops spread 6 to 8 mm in diameter, The first flower is often white, turning yellow, orange or pink with age.[2]

Chemical constituents

Alkaloids, Flavonoids, cardiac glycosides, Terpenoids, tannins andphenolic compound, proteins are present.

Traditional uses

- It is used to treat malaria, chickenpox, asthma, ulcer, swelling, eczema, tumour, blood pressure, bilious fever, sores fever, colds and high B P.
- Lantana essential oil is used externally for treating skin irritation, leprosy and scabies.
- It is also an antiseptic for wounds.
- It extract have been used for varies illness.[3]

Anti-urolithatic activity from drugs

Ethannolic extract of the flower of Lantana camara showed significant dose dose dependent protection against uroliths of rats induce by glass beads implantation.[4] The effect of aqueous extract of Lantana camara redused oxalates in rats, where oxalates induced by sodium oxalate. The glycolate resulted in hyporoxalurea and increased the activities of oxalate synthesizing lever enzymes like glycolate oxidase, glycolate dehydrogenase and lactate dehydrogenase and decrease kidney LDH activity, where the extract has reserved the activity of above said enzymes.[5]

The medicine for urolithiasis to relieve the acute pain, combined tincture of wild yam, cram bark, kava, and jamica god wood, drinking the infusion of equal parts of gravel root, carn silk, pipissewa, and kava, found to effective in urolithiasis.[6]

MATERIALS AND METHODOLOGY

1. Collection and Authentication of plant materials

The plant Lantana camara was collected from southern part of Karnataka (Mandya).Then the plant is Authentified by Dr. Mahesh. Msc, Mphil, Ph. D. Associate professor and head of the department of studies in Botony, Bharathi college, Bharathi nagara, Maddur (tq), Mandya. After the collection, the flowers part of the plant is cut into small pieces and shade dried. The dried material was then pulverized separately into coarse powder by a mechanical grinder. The resulting powder was preserved in the department of further study.

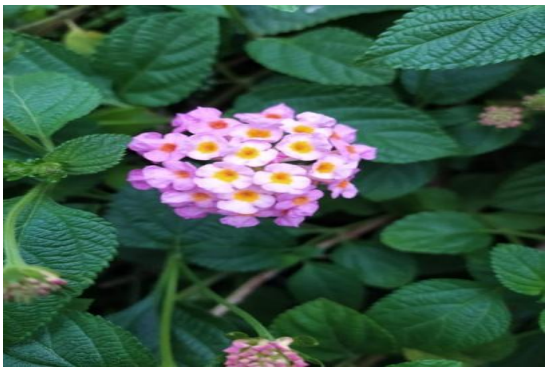

Figure 3: Lantana camara flower collection.

2. Extraction and Isolation

50gm of dried powder is added to 200 ml of water in a beaker and the mixture is macerated at 24 hourse, after the maceration the mixture was filtered by muslin cloth or filter paper. Then the filtrate is collected in a chinadish and subjected for evaporation. After the evaporation the residue was collected and stored.

3. Phytochemical screening

Test for free amino acids

Ninhydrin test:- Test solution when boiled with 0.2% solution of ninhydrin. Formation of purple color suggests the presence of free amino acids.

Test for proteins

Biuret test:- Test solution was treated with equal volum of 10% sodium hydroxide solution and two drops of 1% copper sulphate solution, mixed well and observed for the formation of violet/pink color. If it is so, presence of proteins was detected.

Xanthoproteic test:- Two ml of extracts were treated with few drops of conc. Nitric acid. Mixed well. Formation of light to dark yellow color was noted which which indicates the presence of proteins.

Test for alkaloids

**Dragendroff`s test:-** A fraction of extract was treated with 3-5 drops og dragendroff`s reagent and observed for the formation of reddish of reddish brown ppt which indicates the presence of alkaloids.

**Hager`s test:-** Extract was treated with hager`s reagent. Formation of a yellow colored precipitate indicates the presence of alkaloids.

Test for glycosides

Liebermann`s test:- Crude extract was mixed with each of 2mi of chloroform and 2ml of chloroform and 2ml acetic acid. The mixture was cooled in ice. Carefully conc. H_2SO_4 was added. A colour change from violet to blue to green indicated the presence of steroidal nucleus, i.e., glycine portion of glycoside.

Test for phenols

Ferric chloride test:- Extract were treated with 3-4 drops of ferric chloride solution . Formation of bluish color indicates the presence of phenols.

Test for flavonoids

Alkaline reagent test:- crude extract was mixed with 2ml of 2% solution of NaOH. An intense yellow colour was formed which turned colourless on addition of few drops of diluted acid which indicated the presence of flavonoids.[7]

4. Determination of total ash value

a) Determination of total ash

About 2g of powdered drug was weighed accureatly and placed in tarred silica crucible and incinerated at 450ºC in muffle furnance until free from carbon. Crucible cooled, kept in a desiccators and weighed. Same procedure was repeated to arrive at constant weight. The % of total ash obtained was calculated with reference to the air dried drug.

Total ash value of powdered crude drug were recorded.
Total ash value of sample = 100 (Z – X) / Y
Z = Weight of total dish + ash (after complete incineration)X = Weight of the empty dish
Y = Weight of the drug taken

b) Water soluble ash value
Total ash was accurately weighed and boiled with 25ml of water for 5min, filtered on ash less filter paper. Insoluble matter was washed with hot water, ignited at near about 450ºC temperature in muffle furnace. Cooled in a desiccators & weighed.

c) Sulphated ash vaue
Silica crucible heated to redness for 10 min was allowed to cool in a desiccators and weighed. 1gm of substance is weighed and transfer in to crucible. It was ignited, until substance was charred. Then the residue was cooled & moistened with 1ml of conc.H_2SO_4, heated gently until white fumes are no longer evolved and ignite at 800±25ºC until black particles have disappeared. Add few drops of sulphuric acid and allowed to cool & weighed.[8]

1. Determination of extractive value
Extractive value of crude drug determine the amount of active constituent extracted with solvents from a given amount of plant material.

a) Alcohol soluble extractive value
About 5g of coarse powder of the crude drug was weighed and macerated in iodine flask with 100 ml of 70% v/v alcohol, for a duration og 24 hrs, with frequent shaking. Solution was filtered rapidly. Taking precaution against loss of alcohol, 25 ml of filterd solution was evaporated to dryness at 105ºC in a tarred flat bottom petridish. The percentage of alcohol soluble extract was determined with reference to shade dried drug.

b) Water soluble extractive value
About 5g of coarse powder of the crude drug was weighed and macerated in iodine flask with 100 ml of water. For a duration of 24hrs, with frequent shaking. Solution was filtered rapidly; taking precaution against loss of water, 25 ml of filtered solution was evaporated to dryness at 105ºC in a tarred flat bottomed petridish. The percentage of water soluble extractive was determined with reference to the shade dried drug.

5. Evaluations for anti – Urolithiatic activity
Step-1: Preparation of experimental kidneystones (Calcium oxalate stones) by homogenous precipitation
Equimolar solution of Calcium chloride dehydrate (AR) in distilled water and Sodiumoxalate (AR) in 10ml of 2N H_2SO_4 were allowed to react in sufficient quantity of distilled water in a beaker. The resulting precipitate. The resulting precipitate was calcium oxalate. Equimolar solution of Calcium chloride dyhydrate (AR) in distilled water and Disodium hydrogen phosphate (AR) in 10ml of 2N H_2SO_4, was allowed to react in sufficient quantity of distilled water in a beaker. The resulting precipitate was calcium phosphate. Both precipitate freed from trace of sulphuric acid by Ammonia solution. Washed with distilled water and dried at 60ºC for 4 hourse.

Step-2: Preparation of semipermeable membrane from farm egg
The semi-permeable membrane of eggs lies in between the outer calcified shell and the inner contents like albumin & yolk. Shell was removed chemically by placing the egg in 2M HCl for an over night, which caused complete decalcification. Further, washed with distilled water, and carefully with asharp pointer a hole is made on the top and the content squeezed out completely from the decalcified egg. Then egg membrane washed thoroughly with distil water, and placed it in ammonia solution, in the moisten condition and rinced with distilled water. stored in refrigerator at pH of 7-7.4.

Step-3:- Estimation of calcium oxalate by titrimetry
Weighed exactly 1mg of calcium oxalate and 10mg of extract and packe it together in semi evaluation. Permiable by suturing as shown in model design fig. Thisa was allowed to suspend in a beaker containing 100ml of buffer.One group served as negative control (containing only 1mg of calcium oxalate). Placed the conical flask containing all groups inS incubator at 37ºC for 2 hrs. Remove the content of semi permeable membrane from each group into a test tube. Added 2 ml of 1 N sulphuric acid and titrated with 0.9494 N $KMnO_4$ to obtain pale pink as an end point.1ml of 0.9494 N $KMnO_4$ equivalent to 0.1898mg of Calcium. The amount of undissolved calcium oxalate is substracted from the total quantity used in the experioment in the beginning, to know how much quantity of calcium oxalate actuallytest substance could dissolved.[9]

RESULT
Extraction
- Flower extract

The weight of Lantana camara Flower powde =15gm
Weight of the extract obtained = 1.5g
Percentage yield = (Weight of the extract ÷ Weight of the powder)×100
= (1.4÷15)×100
= 9.3% w/w

Extractive value of lantana camara

Table no. 1: Determination of extractive value of flower.

Sl. no.	Solvent	Extractive value (w/w)
1	Alcohol soluble	9.3%
2	Water soluble	16.6%

Table no. 2: Determination of ash value.

Sl. No.	Parts of the Plant	Total ash (w/w)	Water soluble ash (w/w)	Sulphated ash (w/w)
1	Flower	18.5%	16%	14.5%

Table no. 3: Determination of moisture content.

Sl. No.	Plant	% loss on drying (w/w)
1	Lantana camara	75 %

Preliminary phytochemical screening of extract

The successive solvent extracts of the leaves and stem of Lantana camara werescreened for various test mentioned in methodology.

The result are given in table,

Table no. 4: Preliminary phytochemical screening of the extract.

Phytochemicals	Test performed	Flower	
		W.E	M.E
Alkaloids	Dragendroff test	_	+
Glycosides	Liebermann`s test	+	+
Flavanoids	Alkaline reagent test	_	+
Saponins	Froth test	+	+
Phenolic Compounds	Ferric chloride test	_	+
Steroids	Libermann-burchard test	_	_
Carbohydrates (reducing sugars)	Benedicts and Molisch test	+	+

REFERENCE

1. Khanna, L. S.; Prakash, R. Theory and Practice of silvicultural Systems. International Book Distributions, 1983.
2. Sanders, R.W. "Taxonomy of Lantana sect Lantana (Verbenaceae)". Journal of the Botanical Research Institute of Texas, 2012; **6**(2): 403–442.
3. Arellanes, J.A., Macke's, M., Torres J. and Herrera, L.J. Activity against multidrug Resistant Tuberculosis in Mexican plants used to treat respiratory diseases. Phyto. Res, 2015; 17(8): 903-8.
4. Anand R, Patnaik GK, Kulshrestha DK, Dhawan BN. Dhawan BN. Activity of certain fractions of Lantana camara fruits against experimentally induced incluced urolithiasis in rats. Ind J ExpBiol, 1994; 32(8): 548-52.
5. Anand R, Patnaik GK, Kulshrestha DK, Dhawan BN. Activity of certain fractions of Lantana camara fruits against experimentally induced urolithiasis in rats. Ind J ExpBiol, 994; 32(8): 548-52.
6. AnneMcClenon ND. Alternative and Complimentary Medicine, 1999.
7. Kokate C.K, Practical pharmacognosy, and Vallabh Prakashan: NewDelhi, 1999.
8. Brain K R and Turner to the practical evaluation of phytopharmaceuticals, wrightscientechnica : Bristol, 1975; 85.
9. Edwin S, Joshi S B, Jain D C. comparative pharmacognostic studies on root powerof Plumbago Zeylanica and Plumbagorosea. Indian J. Nal Prod, 2008; 2: 27-9.