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RESEARCH ARTICLE

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PHYTOCHEMICAL SCREENING OF *ABUTILON MUTICUM* (DEL.EX DC.) AND *CELOSIA ARGENTEA LINN*

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ABSTRACT

Medicinal plants have been used in all cultures throughout history. Extensive scientific documentation now exists concerning their use for health conditions including many disorders. Medicinal plants are of great importance to the health of individuals and communities. Hence the Author proposes to screen the some above mentioned drugs. The present paper deals with the screening of various phytochemical present in various extract viz., Methanol (80%), Distilled water with chloroform (2.5%) of *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn*.

KEYWORDS

*Abutilon muticu*m, *Celosia argentea Linn,* phytochemical screening, Methanolic extract.

INTRODUCTION

Medicinal plants have been used in various traditional systems against numerous diseases. Many indigenous Indian plants have been found to be useful to manage the many diseases. Some of such medicinal plants are selected in this investigation.[1] I.e. *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn*. Because the synthetic drugs have major side effects like gastritis, gastric ulcer, kidney disorders and cardiac disorders. The proposed research work intends to study the efficacy of the herbal medicines mentioned above. Medicinal plants are of great importance to the health of individuals and communities.[2] The medicinal value of these plants lies in some chemical substances that produce a definite physiological action on the human body.[3] Many indigenous medicinal plants are also used as spices and food plants.[4]

MATERIAL & METHODS

Collection of plant material

The plants *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn* were chosen for the present investigation were collected in the months of July 2010- Nov. 2010, from the leaves and stems of the selected plants will be collected from uncultivated farmlands located at Mandvi and Nakhatrana areas of Kutch region in Gujarat and also from farmers and tribal's of Madhya Pradesh and were identified and authenticated by Dr. S. N. Dwivedi, Prof. and Head, Department of Botany, Janata PG College, APS, University, Rewa, Madhya Pradesh, India

Preparation of plant powder

The plant were dried under shade and then powdered with a mechanical grinder. The powder was passed through
Sieve No. 40 and stored in an airtight container for further use.

Preparation of extracts

The dried powder was extracted with methanol (80%) in a soxhlet apparatus. Aqueous extract was prepared by cold maceration process by using separate quantity of powder. The solvents were removed by distillation under reduced pressure and the resulting semisolid mass was vacuum dried using rotary flash evaporator. The percentage yields are presented in table.

PRELIMINARY PHYTOCHEMICAL SCREENING:

1. Tests for carbohydrates and glycosides[6]

Molisch's test
Sample was treated with 2-3 drops of 1% alcoholic - napthol solution and 2 ml of conc. sulphuric acid was added along the sides of the test tube. Appearance of brown ring at the junction of two liquids shows the presence of Carbohydrates.

Legal's test
To the sample add 1 ml of pyridine and few drops of sodium nitropruside solutions and then it was made alkaline with sodium hydroxide solution. Appearance of pink to red color shows the presence of glycosides.

Borntr ager's test
Sample was treated with chloroform and then the chloroform layer was separated. To this equal quantity of dilute ammonia solution was

added. Ammonia layer acquires pink color, showing the presence of glycosides.

2. Test for alkaloids[6]

A small portion of the sample was stirred separately with few drops of dilute hydrochloric acid and was tested with various reagents for the presence of alkaloids. The reagents are

o Dragendroff's reagent - Reddish brown ppt
o Wagner;s reagent - Reddish brown ppt
o Mayer's reagent - Cream color ppt
o Hager's reagent - Yellow color ppt

3. Test for proteins and free amino acids[6]

Small quantities of the sample was dissolved in few ml of water and treated with following reagents.

o Million's reagent: Appearance of red color shows the Presence of protein and free amino acid.
o Ninhydrin reagent: Appearance of purple color shows the Presence of Proteins and free amino acids
o Biuret's test: Equal volumes of 5% sodium hydroxide solution & 1% copper sulphate solution was added.

Appearance of pink or purple color shows the presence of proteins and amino acids.

4. Test for tannins[7]

A small quantity of the sample was taken separately in water and test for the presence of phenol compounds and tannins was carried out with the following reagents.

o Dilute Ferric chloride solution (5%) - Violet color.
o 10% lead acetate solution - White ppt

5. Test for flavonoids[8]

Alkaline reagent test

To the test solution add few drops of magnesium hydroxide solution, intense yellow color is formed which turns to colorless on addition of few drops of dilute acid indicates presence of flavonoids.

Shinoda's test

Small quantities of the sample was dissolved in alcohol, to them piece of magnesium followed by conc. hydrochloric acid drop wise added and heated. Appearance of magenta color shows the presence of flavonoids **.**

6. Tests for fixed oils and fats Spot test[8]

o A small quantity of sample was separately pressed between two filter papers. Appearance of oil stain on the paper indicates the presence of fixed oil.
o Few drops of 0.5 N alcoholic potassium hydroxide were added to a small quantity of sample along with a drop of phenolphthalein, the mixture was heated on a water bath for 1-2 hours, format ion of soap or partial neutralization of alkali indicates the presence of fixed oils and fats.

7. Tests for steroids and triterpenoids[8]

Libermann-burchard test

Treat the sample with few drops of acetic an hydride, boil and cool. Then add con. sulphuric acid from the side of test tube, brown ring is formed at the junction two layers and upper layer turns green which shows presence of steroids and format ion of deep red color indicates presence of triterpenoid.

Salkowski test

Treat the sample with few drop of conc. sulphuric acid, red color at lower layer indicates presence of steroids and formation of yellow colored lower layer indicates presence of triterpenoids.

8. Test for mucilage's and gums[8]

Small quantities of sample was added separately to 25 ml. of absolute alcohol with constant stirring and filtered. The precipitates was dried in oil and examined for its swelling property for the presence of gum and mucilage.

9. Test for waxes[8]

To the test solution add alcoholic alkali solution, waxes get saponified.

RESULTS AND DISCUSSION

The plant *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn*. belonging to the family Malvaceae and Amaranthaceae were taken up for the study by us to screen and give a report on the possible preliminary phytochemical screening and exhaustive extraction of the plant material was done with Methanol (80%), Distilled water with chloroform (2.5%) and the extracts were screened for the presence of various medicinally active phytoconstituents. The various extracts of the plant of *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn* were subjected to phytochemical screening which reveals the presence of various pharmacological active components. Aqueous extract shows presence of alkaloids, carbohydrates, glycosides, tannins, protein, amino acids, steroids. Methanolic extract shows presence of alkaloids, carbohydrates, glycosides, tannins, protein, amino acids, and steroids. Chloroform extract shows presence of carbohydrates, tannins and Petroleum ether extract shows presence of alkaloids, carbohydrates, glycosides, protein and amino acids, steroids. Since, the major active constituents are present in Methanolic and aqueous extract, therefore, the Methanolic and Aqueous extract were taken for further investigation. The results are shown in Table 1

Table 1
Preliminary phytochemical screening of different extract of *Abutilon muticu*m (Del.ex DC.) and *Celosia argentea Linn.*

Constituents	Test	AML		CAL	
		Aq	Me	Aq	Me
Alkaloids	Mayer's test	+	+	+	_
	Dragendroff' test	+	+	_	_
	Hager's test	_	+	_	_
	Wagner's test	_	+	_	+
Carbohydrates	Molisch's test	+	+	_	_
	Fehling's test	+	+	_	_
Glycosides	Brontrager's test	_	+	_	+
	Legal's test	+	+	_	+
Fixed oil and fats	Spot test	_	_	_	_
	Soap formation test	_	_	_	_
Tannins	Fecl3	_	_	+	+
	Vanillin hydrochloride	_	_	_	_
	Alkaline reagent	_	_	_	_
Protein and amino acid	Million's test	+	_	_	_
	Ninhydrin test	_	_	_	+

	Biuret test	_	_	+	+
Flavanoids	With NaOH	_	+	_	+
	With H_2SO_4	+	_	_	_
Steroids and triterpenoids	Libermann's Burchard test	_	+		
	Salkowski's test	_	_	+	+
Mucilage and gum	With 90% alcohol	_	_	+	+
Waxes	With alc. KOH	_	_	_	_

Abbreviation.: *+=Present, - = Absent, Aq= Aqueous extract, Me=Methanolic extract, AML=Abutilon muticum (Leaves), CAL=Celosia argentea Linn. (Leaves),*

CONCLUSION

Phytochemical screening of *Abutilon muticu*m And *Celosia argentea linn* have done by different method.

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