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PHYTOCHEMICAL AND POWDER MICROSCOPICAL EVALUATION OF *PROSOPIS CINERARIA (L.) LEAVES*

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ABSTRACT

Prosopis cineraria (L.) important herbal plant is locally known as shemees, common tree of India desert belonging to family Leguminosae (Fabaceae). the plant is known as " Golden tree " of the desert. It is used traditionally for treatment of various diseases like dysentery, asthma, leprosy, leukoderma, and dyspepsia etc. various phytoconstituents like alkaloids, Flavone derivatives, steroids, tannins have been isolated from the plants and various pharmacological activities like analgesic, antipyretic, antioxidant, antihyperglycemic, antitumor, antihypercholesterolemic have been reported from different plant extracts. The present paper deals with phytochemical and microscopical evaluation of prosopis cineraria of plants.

Keywards- Phytochemical screening, Powder microscopy, physiochemical properties.

INTRODUCTION

Herbal medicine is still the mainstay of about 70-80% of the writhed population mainly in the developing countries for primary health care because of better cultural acceptability, better compatibility with the human body and lesser side-effects. The chemical constituents present in them are a part of the Physiological function of living flora. herbal drugs for age related diseases namely Memory loss, Osteoporosis, Diabetic wound, Immune and liver disorders etc. for which no modern medicine or only Palliative therapy is available. The *Prosopis cineraria* are made from renewable resources of raw materials by Eco –friendly process and will bring economic prosperity to the masses growing these materials.

Prosopis Cineraria tree grows in dry and arid region of Ariba and in region of India namely Rajasthan, Haryana, Punjab, Gujarat, Western Uttar Pradesh, and drier parts of deccan and extends as far as South in Tuticorin. The broader range of pharmaceutical application like in Pain, High Cholesterol level, Diabetes, Anemia, Kidney & Liver disorder. The amelioration of numerous illnesses *P.cineraria* pods provide Protein,

Iron, Vitamins A and C and other micro minerals. *P. Cineraria* is applied on boils and blisters and mouth ulcers in livestock. the smoke of leaves is considered good eyes troubles. Leaves extract of *P. cineraria* have shown antibacterial, anti-hyper glycemic, anti- hyperlipidemic and antioxidative activities. Various Phytoconstituents like Tannins (Gallic acid), Steroids (Stigmasterol, Campestral, Sitosterol), Flavone derivatives (Protoverine A, B, C, D and E), Alkaloids (Spiceries, Podophyllin) etc. It is use as Anti-hyperlipidemic, Antioxidative, Anthelmintic, Antibacterial, Antifungal, Anti-viral, Anticancer in treatment of Dysentery, Bronchitis, Asthma, Leukoderma, Piles,Leprosy, Muscular Tremors and Wandering of the mind.

Prosopis Cineraria contains various Phyto constuents which are present like Glycoside Patulin, Patulitrin, Luteolin, Rutin, Sitosterol, Spicigerine, Flavone derivatives Prosogerin A, B, C, D and E. Sterol like comoestrol, Choles –trol, Sitosterol, Actacosanal, hentriacontane, Methyldosonoate, Diiso-prpyl-10, 11-dihydroxyicosane-1, 20-doiate, Tricosan-1-ol, and 7, 24-Tr-ucalladien-3-1 along with a piperidine alkaloid spicigerin, Gallic acid, triterpenoid glycoside, Vitamin K1, n- octacosyl, acetate. The common name of plant also known as Khari in Hindi.

MATERIALS AND METHODS

Collection and Identification of Plant material

The leaves of the plant *Prosopis Cineraria* (family Leguminosae:) was collected from local area Jahanaganj dist Azamgarh Uttar Pradesh and identified and authenticated by pharmacognosy lab pharmacy college Azamgarh U.P. with **herbarium Specimen No. 02/2021.**

MORPHOLOGICAL CHARACTERS

The dried leaves of *Prosopis Cineraria* were taken and observed morphological (organoleptic) parameters including color, odour, taste, shape, size, texture, fracture characteristic and appearance of the surface.

PHYSICOCHEMICAL EVALUATION

Loss on Drying

Moisture contents is the important parameter for the determination of presence of moisture in the crude drugs, it may refer to the loss of any volatile to the sample. Loss on drying is the loss of weight expressed as percentage w/w resulting from water and volatile matter of any kind that can be driven off under specified.

Swelling Index

Swelling Index were determined by the method prescribed in WHO guidelines. Take 100ml clean, dried measuring cylinder. Weigh 1g of powdered crude drug (*Prosopis Cineraria*). Transfer the sample (*Prosopis Cineraria*) to measuring cylinder. Make up the volume 100ml in measuring cylinder with distilled water. By covering the top of cylinder shake properly for 30min at frequent interval of time. Measure the initial height of powdered sample in cylinder using scale. Leave the sample standing for 24 hours by capping the cylinder. Measure the height covered by swollen drug Calculate the difference between volumes of swollen drug and dried drug sample.

Foaming index

Take 1gm air dried plant material pass with Sieve (60) No to produce fine powder. Transfer the sample in to Conical flask and boil for 25 to 30 min. Cool and filter the mixture, Transfer it into 100ml of volumetric flask

and makeup the volumes up to a mask. Then transfer the filtrate into 10 test tube in gradually increasing Volumes. Diluted it up to 10ml (1- 10) ml. Then Shaken the test tube. Shake for 15sec [2 Shake/ sec] Keep it I5 min for settle down in 15 min measure the height of in each test tribe of foam.

Fluorescence Analysis

Fluorescence is the process where a material observes light at a high energy, short wave length and emits light at a lower energy, usually visible, wave length. UV light radiates at shorter wave length than visible light and cannot be seen by the human eye. However, when UV light is observed by certain material it is reflected toward the eye as longer wave length visible radiation, or visible light. This phenomenon is referred to as UV induced visible Fluorescence.

Ash value

Ash contains inorganic radicals like phosphates, carbonates and silicates of sodium, potassium, magnesium, calcium etc. Sometimes, inorganic variables like calcium oxalate, silicate, carbonate content of the crude drug affects total ash value. Such variables are then removed by treating with acid like hydrochloric acid and used to determine quality and purity of a crude drug. Ash content in the investigated plant species *Streblus asper* was calculated by the methods given below:

Determination of Total Ash

Weigh and ignite flat, thin, porcelain dish or a tared silica crucible Weight about 2 g of the powdered drug into the dish or crucible. Support the dish on a ring of retort stand. Heat the burner, till vapours almost cease to the evolved, then lower the dish and heat more strongly until all the carbon is burnt off. Cool in the desiccator. Weight the ash and calculate the percentage of total ash with reference to the air-dried sample of the crude drugs.

Determination of Water-Soluble Ash

100 mg of ash was boiled for five minutes with 25 ml of distilled water. The insoluble matter was collected in a silica crucible or on an ash less filter paper. It was washed with hot water and then ignited to constant weight at low temperatures. The weight of the insoluble matter was subtracted from the weight of the ash. The percentage of water-soluble ash was calculated with reference to the amount of ash taken.

Determination of Acid Insoluble Ash

Using 25 ml of dilute hydrochloric acid, wash the ash from the dish used for total ash into a 100 ml beaker. Filter through an ashless filter paper, wash the residue twice with hot water. Ignite a crucible in the flame, cool and weight. Put the filter paper and residue together into the crucible, heat gently until vapours cease to be evolved and then more strongly until all carbon has been removed. Cool in a desiccator Weight the.

RESULTS AND DISCUSSION

Table 1: **Observation of Organoleptic Characters of *Prosopis Cineraria* leaves**

S. NO	Parameters	Leaves
1	Colour	Greenish Brownish
2	Odour	odourless
3	Taste	Slight Bitter
4	Shape	Cylindrical oval elongated
5	Size	0.5 to 4.5 cm diameter

Table 2: Physical Parameters

S. NO	Parameters	Values
1	Loss on drying	2.1 %
2	Swelling Index	Absent
3	Foaming Index	< 1
4	Total Ash	4.21 %W/W
5	Acid insoluble ash	1.5 % W/W
6	Water soluble ash	0.74 % W/W
7	Extractive value Methanol Aqueous	 9.02 % 28.05%

Table 3: Observations of Fluorescence Analysis

S. N0	Powder drugs/ Treatments	Day light	At short wavelength (254nm)	At short wavelength (366 nm)
1	Powder drugs as such	Greenish Brownish	Brownish	Light Brownish
2	Drug+ Conc H2SO4	Brownish	Light brown	Brownish green
3	Drug+I2 soln	Dark Brownish	Brownish red	yellow brown
4	Drug+5%Fecl3	Yellowish brown	Light brown	Brownish
5	Drug+Conc.HN03	Reddish brown	brownish	Brownish dark
6	Drug+ Acetic acid	Brown	Brown dark	brownish
7	Drug+10% NaOH	Brownish	Brown green	Dark brown
8	Drug+ Dil HCI	Brownish	Light Brownish	greenish Brownish
9	Drug+ Methanol	Light Brownish	Dark Brownish	Dark Brownish

10	Drug+ Dil H2SO4	Light Brownish	Brownish	yellow Brownish
11	Drug+ KOH	Brownish	Brownish green	Brownish dark
12	Drug+10% NaOH+ A drops CuSo4	Light brown	Light brown	Brownish dark

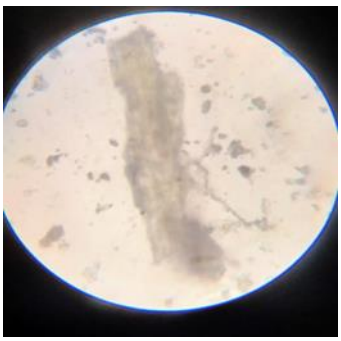
Table 4: Observations of Phytochemical Screening of *Prosopis Cineraria*

S. No.	Chemical tests	Reagents	Methanol extract	Aqueous extract
1	Alkaloids	Mayer's reagents Dragendorff's reagent Hager reagents Wagner reagents	+	+
2	Glycosides Cardiac Anthraquinone	Killer Killiani test Bontrager's test		+
3	Saponin	Foam test	+	+
4	Carbohydrates	Fehling test Benedict's test	+	+
5	Tannins	5% FeCl3 Gelatine	+	+
6	Steroids	Liberman Burchard test Salkowski test	+	_
7	Flavonoids	Sinoda test	+	+
8	Proteins	Mallon's test Biuret test	+	_

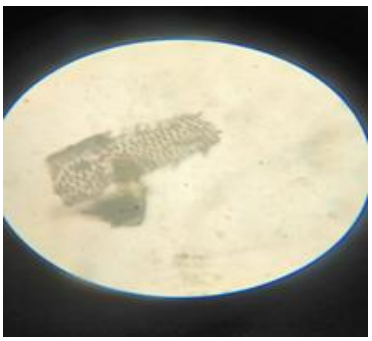
(+) Present, (--) Absent

EVALUATIOM OF POWER MICROSCOPY

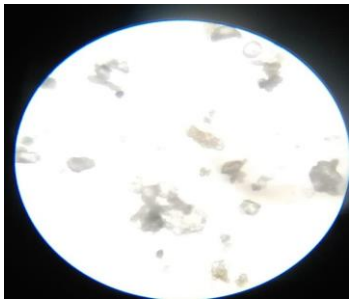
Take small amount of powdered drug on slide and watch under the microscope to know about its powdered characters. Take small quantity on slide and treated it with Phloroglucinol and iodine solution to clear the view of structure present in it. The dry white powder showed the multicellular and lignified trichomes, fibres calcium oxalate crystals prismatic and cluster, xylem vessels that were seen.



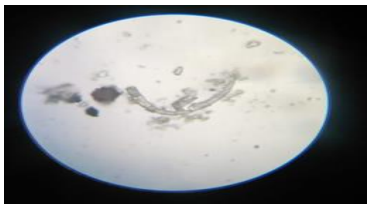
Fibers



Vessels



Calcium oxalate



Trichome

Fig- 1. Show Fibers, Vessels, Calcium oxalate and Trichomes

CONCLUSION

The results of the present study have established the specifications of the quality and purity profile of the crude drugs *Prosopis Cineraria* leave. The standardization of the crude drugs is the major parameter for the confirmation of the identity, quality and purity of the drugs and detection of the adulteration. The drugs should be standardized before any research and the results should be indicates the quality of the crude drug.

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