

**PHYTOCHEMICAL ANALYSIS AND TRADITIONAL USE OF SOME
MEDICINAL PLANTS IN SAKTI (JANJGIR-CHAMPA)
CHHATTISGARH AREA "**

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ABSTRACT

Ayurveda is believed to be prevalent since last 5000 years in India. It is one of the most noted systems of medicine in the world. Ayurveda is based on the hypothesis that everything in the universe is composed of five elements viz. space, air, energy, liquid and solid. These elements exist in the human body in combined forms like Vata (space and air), Pitta (energy and liquid) and Kapha (liquid and solid). Vata, Pitta and Kapha together are called Tridosha (three pillars of life). Some important herbs from ayurveda include Rauwolfia serpentina, Asparagus racemosus, Cassia angustifolia, Sesamum indicum,

Holarrhena antidysenterica, Withania somnifera, Aconitum napellus and Piper longum etc. Natural products, including plants, animals and minerals have been the basis of treatment of diseases from time immemorial. History of medicine dates back practically to the existence human civilization. The current accepted modern medicine or allopathy has gradually developed over the years by scientific and observational efforts of scientists. However, the basis of its development remains rooted in traditional medicine and therapies. The history of medicine includes many ludicrous therapies. In this thesis we have to discuss about the Traditional plant that is:-

1. Mimosa Pudica (Fabaceae),
2. Gardenia Latifolia (Rubiaceae),
3. Adiantum capillus-veneris (Pteridaceae)

KEYWORDS: Tannins, Flavonoids, Saponins, Phenols.

INTRODUCTION

Chhattisgarh has a rich and varied flora due to its diversified topography and variable climatic condition. About 20-25 tribes are living in isolated or in combination in four different zones like Central, Eastern, Western, Northern and Southern zones respectively. The Gonds constitute the largest tribe amongst the other tribes of the state. District Janjgir-Champais located in the Central zone of Chhattisgarh. The District Head Quarter Janjgir of the district Janjgir-Champa is the city of Maharaja Jajawalya Dev of Kulchury dynasty. The Janjgir-Champa district is a major producer of Food Grains in the state Chhattisgarh. The Vishnu Mandir of Janjgir district reflects the golden past of this district. The Vishnu Mandir is an ancient artistic sample of Vaishnav community.

The Hasdeobango project has been considered as life supporting canal for the district Janjgir-Champa. Under this project 3/4th area of the district will be covered for irrigation.

Janjgir-Champa have an enormous range of wild plants and have developed a unique understanding of the forest resources and passed on these traditions of medicinal remedies and knowledge by word of mouth from one generation to other generation. They also have the key to understanding, utilizing and conserving the plant resources.

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MATERIAL AND METHODS

Collection of plant material

First the site was selected in Sakti, Dist-Janjgir-Champa of Chhattisgarh State. Before picking the whole plant, the soil was moistened. They were washed smoothly by distilled water, the roots, stem and leaves were separated from plants by scissor and all were shed dried at room temperature. Each part of the sample was crushed separately in pestle-mortar to isolate fine powder. This powder was treated as sample powder for various analyses.

Plant Extraction Method

20gms of each sample were taken and root separately with 250ml ethanol using soxhlet apparatus. The root were collected and dried. The condensed root was then dissolved in ethanol to the concentration of 100mg/ml. After that allow for 5 cycles and switch of the apparatus and then take the sample solution and root solution in a beaker and cover it with a paper and make holes on the paper for the evaporation of the solvent.

Allow it for drying and then collect the residue from the beaker. Phytochemical Screening (Dey and Raman, 1957) Phytochemical screening of the plant root was carried out as per the methods and tests given by Dey and Raman (1957) to decipher the presence or absence of various phytochemicals. The stock concentration of plant root 10 mg/ml was used.

The extracts of plants root is subjected to the following chemical tests for the identification of various active constituents.

PROXIMATE ANALYSES

Moisture content

Take first crucible constant 1 g of each root, stem and leaf samples were taken in different crucible and crucible were kept in oven at 110o C for 1 hour. It was then weighed after cooling and kept in oven again till it showed constant reading.

Ash content

Take first crucible constant moisture free 1g of each root, stem and leaf samples were taken in different crucible and heated over blue flame of Bunsen burner for 3hrs. and then place in furnace at 600o C for 5 hrs. Sample was totally converted into white ash. This process was repeated till it showed constant readings.

Cold water solubility

1g of dried samples of root, stem and leaf was put in 100mL distilled water for 1hr. It was filtered through previously weighted sintered glass crucible washed with distilled water, dried in a oven at 110°C and weighted.

Hot water solubility

1g of dried samples of root, stem and leaf was put in 150mL distilled water. It was heated over boiling water bath for 1hr. and filtered through previously weighted sintered glass crucible. Residue was washed with hot water. Dried in oven at 110°C and weighted.

Solubility in 1% NaOH

1g of dried sample of root, stem and leaf was put in 100mL aqueous sodium hydroxide. It was heated on water bath for 1hr. and filtered through previously weighted sintered glass crucible. Residue was washed with distilled water, dried in oven at 110°C and weighted.

Solubility in 1% HCl

1g of dried sample of root, stem and leaf was put in 100mL hydrochloric acid. It was heated on water bath for 1hr. and filtered through previously weighted sintered glass crucible, residue washed with distilled water, dried in a oven at 110°C and weighted.

PHYTOCHEMICAL SCREENING**Test for Protein****Biuret test**

Equal volume of 5% solution of sodium hydroxide and 1% copper sulphate were added. Appearance of pink or purple colour indicates the presence of proteins and free amino acids.

TEST FOR CARBOHYDRATES**Molisch's Test**

The filtrate was treated with 2-3 drops of 1% alcoholic alpha naphthol and 2ml of concentrated sulphuric acid was added the side of the test tube.

Test for Glycosides**Spot test**

A small quantity of the extract was pressed between two filter papers. Oil stain on the paper indicated the presence of fixed oil.

Test For Tannins**Ferric chloride Test**

1ml of the sample taken and a few drops of 0.1% ferric chloride was added and observed for brownish green or blue, black colouration.

TEST FOR STEROIEDS**Sulfuric acid Test**

1ml of the filtrate was taken to that 10% concentration H_2SO_4 was added and observed for green colour.

Test for Flavonoids**Ammonia solution Test**

To 1ml of extract 5ml of dilute ammonia solution was added, followed by addition of concentrated sulphuric acid along the sides of the tube. Appearance of yellow colouration.

Test for Alkaloids**Dragandoff Test**

1ml of sample was taken to that few drops of Dragandoff reagent was added and observed for orange red color.

Test for Anthroquinones**Aqueous ammonia Test**

1ml of sample was taken to that aqueous ammonia (shaking) was added and observed for change in colour of aqueous layer (Pink, Red or Violet).

Test for Phenolic compounds**Phenolic Test**

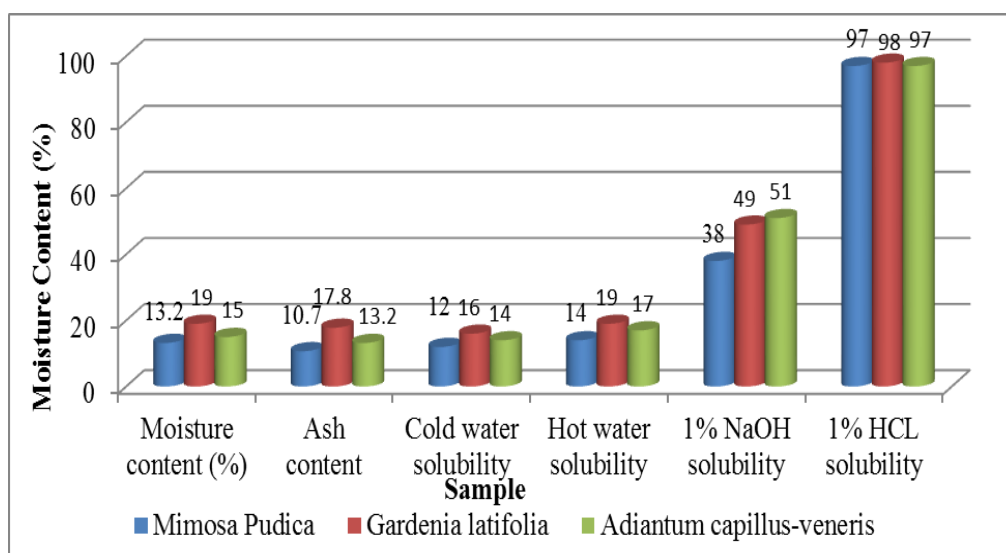
Small quantities of alcoholic and aqueous root in water are tested for the presence of phenolic compounds with dilute ferric chloride solution (5%), 1% solution of gelatin containing 10 % sodium chloride, 10% lead acetate and bromine solutions.

Test for Saponins

To 1ml of extract 5ml of distilled water was added and shaken vigorously. Observed for soaking appearance indicates the presence of saponins.

RESULT**Proximate Analyses Result**

Sample	Mimosa Pudica	Gardenia latifolia	Adiantum capillus-veneris
Moisture content (%)	13.20	19.00	15.00
Ash content	10.7	17.8	13.2
Cold water solubility	12.00	16.00	14.00
Hot water solubility	14.00	19.00	17.00
1% NaOH solubility	38.00	49.00	51.00
1% HCL solubility	97.00	98.00	97.00

**Comparative Analysis of Proximate Analysis of Mimosa Pudica, Gardenia latifolia, Adiantum capillus-veneris****Phytochemical Analyses Result**

S.No	Phytochemical	Mimosa pudica	Gardenia latifolia	Adiantum capillus-veneris
1	Tannins	+	-	+
2	Chloride	-	-	-
3	Protein	-	-	-
4	Steroids	-	+	+
5	Flavonoids	+	+	+
6	Alkaloids	+	+	+
7	Anthroquinone	-	-	-
8	Phenols	+	+	+
9	Saponins	+	+	-
10	carbohydrates	+	-	-
11	Glycosides	-	+	-
12	fixed oils	+	+	-

DISCUSSION

Phytochemical Analysis

The crude root of samples were studied and the result were tabulated Phytochemical, which process many Ecological and physiological roles as widely distributed as plant constituents. Phytochemical exhibit wide range of biological effects as constituents at their antioxidant properties.

The phytochemical analysis of the crude root indicated the presence of Tannins, Chloride, Protein, Steroids, Flavonoids, Alkaloids, Anthroquinone, Phenols, Saponins. These compounds are known to be biological active and therefore used in various medical activities.

Tannins

Tannins may be employed medicinally in antidiarrheal. Diarrhea is also treated with an effective astringent medicine.

Flavonoids

Flavonoid can help in asthma and hay fever. Some studies have shown that flavonoid intake is inversely related to heart disease.

Alkaloids

The medicinal properties of alkaloids are used for the relief of pain.

Phenols

Phenolic compounds are believed to be cancer chemo preventives, compounds that may decrease your risk of developing cancer.

Saponins

Saponins occur in many plant foods and get their name from their soap-like qualities. Eating saponins may help lower your cholesterol .

Carbohydrates

Carbohydrates are a common source of energy.

Steroids

Steroids prevent the progression of kidney inflammation, which can lead to kidney failure in people.

Fixed oil

Fixed oil is odorless, provides good slip and glide for massage. Helps to relieve itching, irritation and inflammation.

Glycosides

It use in treatment of heart disease.

PROXIMATE ANALYSES

A proximate analysis of root Mimosa pudica, Gardenia latifolia, Adiantum capillus-veneris was studied.

It was observed that the root sample contained 13.20%, 19%, 15% moisture content and only 10.7%, 17.8%, 13.2% ash content of Mimosa pudica, Gardenia latifolia, Adiantum capillus-veneris. The percentage of these parameters clearly indicates that root of Mimosa pudica, Gardenia latifolia, Adiantum capillus-veneris is best for drug action and effects.

The cold water solubility and hot water solubility of samples Mimosa pudica, Gardenia latifolia, Adiantum capillus-veneris showed 12%, 16%, 14% and 14%, 19%, 17% results respectively. These results are best for drug transport and drug receptor interactions are controlling force in dilute solutions, which increases potency, drug action and also drug effect.

As the cold water solubility and hot water solubility are less so this factor is responsible for negligible side effects. Hence in herbal drugs side effects are less or negligible as compared to allopathic drugs.

It is also observed from 1% NaOH solubility and 1% HCl solubility of that the result obtained during the study are best i.e. NaOH solubility is 38%, 49%, 51% and HCl solubility is 97%, 98% 97%. These results are directly related to stability of drug and stability of drug directly influence on drug potential, drug action and drug effects.

The result of solubility have their own importance in pharmaceuticals and medicinal sciences because specific and non specific and physicochemical interactions like lipid solubility, osmolarity membrane penetration of drugs depends on these results.

These results directly hamper the drugs effect, drugs activities, stabilities of drug and drug potency also the side effects of drug. The drug stability, drug potency, drug effect and side effect depend upon transport of drug across cell membrane and also through blood in the body.

CONCLUSION

From above studies, it is concluded that the susceptibility of various microbial agents to different concentrations of plants indicates that plant is the potential source for antimicrobial compound. So further work on the profile in order to determine the nature of bioactive principles present in the plant and their mode of action.

In the present era, plant resources are abundant, but these resources are dwindling fast due to the onward march of civilization (Vogel, 1991). Although a significant number of studies have been used to obtain purified plant chemical, very few screening programmes have been initiated on crude plant materials. It has also been widely observed and accepted that the medicinal value of plants lies in the bioactive phytochemicals present in the plants (Veeramuthu *et al.*, 2008).

From the above studies, it is concluded that the traditional plants may represent new sources of anti-microbials with stable, biologically active components that can establish a scientific base for the use of plants in modern medicine. These local ethnomedical preparations and prescriptions of plant sources should be scientifically evaluated and then disseminated properly and the knowledge about the botanical preparation of traditional sources of medicinal plants can be root for future investigation into the field of pharmacology, phytochemistry, ethnobotany and other biological actions for drug discovery.

Root of *A. Precatorius* are rich and edible considering the proximate and mineral composition. Although the root are medicinal, they can also be useful in foods as sweeteners if the sweet portion is root and characterized. This will form part of a planned further work on *A. precatorius*.

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