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QUALITATIVE PHYTOCHEMICAL INVESTIGATION OF MOLINGA OLEIFERA LEAVES

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ABSTRACT

The object of study is to investigate the phytochemicals of plant Moringa oleifera. The plant traditionally was used as medicinal plant from last several decades andt still using by varius pharmaceutical industries to form the medicines. The plant was subjected to soxhlet extraction to recover the extract. The photochemical phenol, glycoside, alkaloid, volatile oil, protein, saponin, phlobatannin, amino acid, molic acid and oxalic acid were qualitatively determined in the ethanolic extract of moringa oliefera. Moringa oleifera could be used in curing many diseases like typhoid fever, diarrohea, high blood sugar, hypertension, gastro intestinal disorder. It is advised that this plant be utilized in cooking and making other formulations that are edible.

KEYWORDS: Molinga oliefera, Extraction, Screening, Quantitative, Alkaloid, Medicine, traditional, phytochemical test.

INTRODUCTION

Moringa oleifera is the most widely cultivated species of a monogeneric family, the Moringaceae, which is native to the Himalayan region of India, Pakistan and Bangladesh. India has maximum capacity of production of Moringa. It is annual production of 1.1 to 1.3 million tonnes of fruits of it from an area of 380 km². It is a perennial softwood tree with timber of low quality but it is from centuries as traditional medicine and also very useful for industrial production of medicines and food.

Whole Moringa tree are edible and have long been consumed by humans. parts of plant use as medicine for cardiac and circulatory stimulation also have antitumor, antipyretic, antiepileptic, anti-inflammatory, antiulcer, antispasmodic, diuretic, antihypertensive,

cholesterol lowering, antioxidant, antidiabetic, hepatoprotective, antibacterial and antifungal actions. Along with above are being employed for the treatment of different ailments in the indigenous system of medicine.

The seed of moringa yield 30-40% by weight of oil, which is sweet non-sticking, non-drying oil that resists rancidity. It was exploring the antibacterial activity and to identify phytochemical constituents present in the M. oleifera.

Cultivation and Production

Moringa oleifera is cultivated by two main ways: sowing and cutting. Traditionally seeds and vegetative propagation preferred in the countries like in India, Indonesia. Sowing requires selection of the seeds, when they are easily available and human labor is limited, while the possibility to transplant seedlings allows flexibility in field planting even if it requires extra labor and costs. Seeds germinate within two weeks, at a maximum 2 cm depth. When sowing is planned in nursery, the seedlings can be transplanted when they reach about 30 cm. The number of seeds per kilogram ranges from 3000 to 9000 or depending on the variety of seed. The germination rate of 80%–90% for ideal storage conditions (3 °C, 5%–8% moisture).

Traditional Uses

Whole plant of Moringa oleifera is traditionally used for different purposes, but leaves are generally the most used. These are used for human and animal nutrition and in the traditional medicine. Leaves are rich in protein, mineral, beta-carotene and antioxidant compounds. Moringa leaves are added to food preparations as integrators of the diet.In previous years these leaves are used to treat several ailments including malaria, typhoid fever, parasitic diseases, arthritis, swellings, and cuts, diseases of the skin, genito-urinary ailments, hypertension and diabetes. They are also used to elicit lactation and boost the immune system, as well as cardiac stimulants and contraceptive remedy.

Directly consume dried leaves, seeds from fruit or the extract of an aqueous infusion. Barks are boiled in water and soaked in alcohol to obtained drinks and infusions that can be used to treat stomach ailments, poor vision, joint pain, diabetes, anemia and hypertension, toothache, hemorrhoids, uterine disorder. In a well known practice, Moringa seeds are used to sediment impurities of water.

Roots are soaked in water or alcohol and boiled with other herbs to obtained drinks and infusions as remedies for toothache, as anthelmintic and antiparalytic drugs and as sex enhancers. Finally, flowers are used to produce aphrodisiac substances and to treat inflammations, muscle diseases, hysteria, tumors and enlargement of the spleen.

Other Uses

Beyond the uses of Moringa as a food and for human health, other possible uses exist. It can be used as a natural plant growth enhancer; indeed leaves are rich in zeatin (a plant hormone belong to the cytokinin group). Leaf extracts can stimulate plant growth and increasing crop yield. Researches performed using a spray based on leaf extracts of wheat, maize and rice support the wide range of beneficial effect on crops

PLANT PROFILE

Moringa oleifera is the most widely cultivated species in the genus Moringa, the from the plant family Moringaceae. The Common names moringa included drumstick tree, horseradish tree and ben oil tree or benzoil tree.

Figure 1: Plant of Moringa Oleifera.

Moringa oleifera is a fast-growing, drought-resistant tree and cultivated in tropical and subtropical regions of South Asia. It is widely cultivated as young seed pods and leaves used as vegetables and for traditional herbal medicine.

Table No. 1: Information of plant olinga oliefera.

NAME – MOLINGA OLIEFERA	
Kingdom	Plantae
Order	Brassicales
Family	Moringaceae
Genus	*Moringa*
Species:	*M. oleifera*
Binomial name - *MoringaoleiferaLam.*	
Synonyms *Guilandinamoringa* L. *Hyperantheramoringa* (L.) Vahl	

Phytochemical Screening

Study of chemical tests for the screening and identification of bioactive chemical constituents in the medicinal plants under study were carried out in extracts as well as powder specimens using the standard procedures as described.

MATERIAL AND METHOD

Preparation of reagents

Maeyer's reagent: 0.355 g of mercuric chloride was dissolved in 60 ml of distilled water. 5.0 g of potassium iodide was dissolved in 20 ml of distilled water. Both solutions were mixed and volume was raised to 100 ml with distilled water.

Dragendorff's reagent

Solution A: 1.7 g of basic bismuth nitrate and 20 g of tartaric acid were dissolved in 80 ml of distilled water.

Solution B: 16 g of potassium iodide was dissolved in 40 ml of distilled water. Both solutions (A and B) were mixed in 1:1 ratio. The plant aqueous, ethanolic, acetone and methanolic extracts were screened for the presence of the phytochemical.

Plant Collection and Drying: *Fresh Molinga* leaves were collected from Bhopal and it was dried by the air drying method.

Extraction: The extraction of molinga oriefera was done with the help of soxhlet apparatus by using ethanol as solvent. 25 g leaves use for extraction and 250 ml ethanol was taken in the apparatus and heat for 6 hours at temperature 80^{o} C. after completion of extraction process e residue remove by the help of whattman filter paper. The dried extract was obtained by evaporation of filtrate at room temperature.

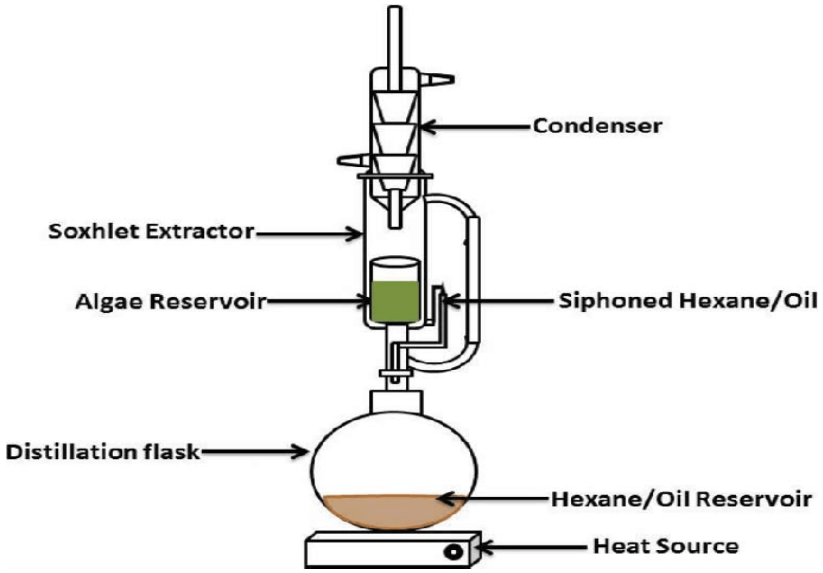

Figure No. 2: Soxhlet Apparatus.

Phytochemical Test

The ethanol extracts was obtained from the dried leaves' powder by using soxhalation process. This was used for qualitative screening of Tannins, Phlotannins, Saponins, Flavonoids, Terpenoids, and Steroids.

1) Phenol: 2ml of extract was added to 2ml of (1%) ferric chloride solution (FeCl3) a deep bluish green solution is formed with presence of phenols.

2) Glycosides: 25ml of dilute sulphuric acid was added to 5ml of extract in test tube & boiled for 15min, cooled and neutralized with 10%NaOH , then 5ml of fehling solution A and B was added. A brick red precipitate of reducing sugars indicates presence of glycosides

3) Alkaloid: Equal volume of the solvent extract 1ml. wagner's reagent were placed into a clean test tube and observe for some minute presence of alkaloid was indicate by brown precipitate.

4) **Volatile oil**: 2ml. extract solution was shaken with 0.1ml dilute sodium hydroxide and a small quantity of dilute HCL a white presipate was formed with volatile oil.

5) Protein: to 3ml extract add 4%NaOH and few drops of 1% CUSO4 solution then no color change so protein absent.

6) Saponin: 1g of sample was weighed into a conical flask 10ml of sterile distilled water was added and boil ed for 5min the mixture was filtered and 2.5ml of the filtrate was added to 10ml of sterile distilled water in a test tube the test tube was stooed and shaken vigorously for about 30second. It was allowed to stand for half an hour honeycomb froth indicated the presence of saponin.

7) Phlobatannins: 1ml of hydrochloride acid and 1ml of solvent extract were placed into a clean testtube and the test tube was heated for about 10min. reddish green colorations indicate the presence of phlobatannins.

8) Amino acid: heat 3ml of extract and 3 drops 5% ninhydrine solution in boiling water bath 10min then no colour change.

9) Molic acid: to 2ml of test solution added 2 drops of 5% FeCl3 solution green colour appear.

10) Oxalic acid: To 2 ml of test solution added few drop of 5%lead acetate then red precipitate appear.

RESULT AND CONCLUSION

From ears ago the medicine worlds have changed their entire focus on the traditional medicine and natural in place of current medicine for cure since the side effect and toxicity of the synthetic counterpart is increasingly more. Hence the present work was undertake out mainly focused on identifying phytochemicals and their used as safe medicine.

Table No. 2: Result of Photochemical Screening.

S.No.	Photochemical Constituents	Remark
1	Phenol	+
2	Glycosides	+
3	Alkaloid	+
4	Volatile oil	-
5	Protein	-
6	Saponin	+
7	Phlobatannins	+
8	Amino acid	-
9	Molic acid	-
10	Oxalic acid	-

The present study moringa oliefera was identified for the habitual user. The work is designed for the qualitative phytochemical investigation of phytoconstituents like phenol, glycosides, alkaloids, volatile oils, protein, saponin, phlobatannins, amino acid, molic acid and oxalic acid. Investigation of all phytochemical was performed 50% of phytochemicals was absent while remaining present as shown in above Table No. 2.

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