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Phytochemical Estimation of Ethanolic and Chloroformic Extracts of leaves of Moringa oleifera Lam.

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Abstract:-Moringa oleifera is the most wildly cultivated species of the genus Moringa. M. oleifera growing a height of 10–12 m (32–40 ft) and trunk diameter of 45 cm (1.5 ft). The bark has a whitish-grey colour and is surrounded by thick cork. The part of the plants plays very important role medicinally. It includes antiinflamatory, antipyretic, antiepileptic, antiulcerative in addition to these it also acts as antihypertensive. The juice from the leaf of Moringa can reduce glucose levels; it has purgative and strong antimalarial properties. The plant leaves are very good nutrient supplement for malnutrition and also used as an antibiotic. In the present work we carry out the identification of various important seventeen phytochemicals form the Ethanolic and Chloroformic Extracts of leaves of Moringa oleifera Lam. the ethanolic extract shows the positive test for the presence of Steroids,tannin,saponin,coumarins, emodins, alkaloids,Protein's, Flavonoids Phlobatannins and Cardial Glycosides, where as Chloroformic extracts shows the presence of steroids, Saponin, Emodins, Protein's, Diterpene's, Phenol and Cardial Glycosides.

Key words: Moringa oleifera , phytochemical, antibacterial, Ethanolic and Chloroformic Extracts, antimalarial and antibiotic.

Introduction:-

Moringa oleifera is medicinaly very important plant, the most widely cultivated species of the genus Moringa distributed in many countries of the tropics and subtropics. It has impressive range of medicinal uses with high nutritional value. Different parts of this plant contain a profile of important minerals, and a good source of protein, vitamin, carotene, amino acids and various phenolics[1].The leaves of plant Moringa oleifera have rich in antioxidant compounds and various biochemical's. Along with vitamin C and beta-carotene it also contains Quercetin This powerful antioxidant may help lower blood pressure. M. oleifera growing a height of 10–12 m (32–40 ft) and trunk diameter of 45 cm (1.5 ft). The bark has a whitish-grey colour and is surrounded by thick cork. Young shoots have purplish or greenish-white, hairy bark. The tree has an open crown of drooping, fragile branches and the leaves build up a feathery foliage of tripinnate leaves. The flowers are fragrant and bisexual, surrounded by five unequal, thinly veined, yellowish-white petals. The flowers are about 1.0-1.5 cm long and 2.0 cm broad. They grow on slender, hairy stalks in spreading or drooping flower clusters which have a length of 10–25 cm.[2]It is a tall and deciduous tree[3] The Moringa tree is cultivated and used as a vegetable (leaves, pods flowers, roasted seeds), for spice (mainly roots), cooking and cosmetics oil (seeds) and as a medicinal plant (all plant organs)[4]The plant have tremendous medicinal proprety it includes antiinflamatory, antipyretic, antiepileptic, antiulcerative[5] in addition to these it also acts as antihypertensive[6] The juice from the leaf of Moringa can reduce glucose levels; it has purgative, and strong antimalarial properties [7-9].from the above discussion and literature review the moringa olifera not only important medicinaly but it have many economic importance. Considering these facts the present work deals with the estimation of various phytochemicals from their ethanolic and chloroformic leaves extracts.

Materials and Methods:- The Plant material leaves of Moringa oleifera were collected

from Wadgaon road district Yavatmal Maharashtra state during rainy season in the month end of July 2016.

Preparation of Test extract:

The leaves collected of Moringa oleifera Lam were washed with distilled running water after that leaves were dried under shade in the laboratory. The coarse powder of leaves (100 gm) was soaked separately in 500 ml of each of Chloroform & Ethanol and extracted in cold for 3 days with occasional shaking. The extract was filtered and filtrate was dried under shade except water extract. The dried cruide extract was used for qualitative screening of various phytochemicals.

Phytochemical test

Steroid: 1ml extract was dissolved in 10 ml of chloroform & equal volume of concentrated H_2SO_4 acid was added from the side of test tube .The upper layer turns red and H_2SO_4 layer showed yellow with green fluorescence .This indicates the presence of steroid.

Tannin: 4ml extract was treated with 4 ml $FeCl_3$ formation of green colour indicates that presence of condensed tannin.

Saponin: 5 ml extract was mixed with 20 ml of distilled water then agitated in graduated cylinder For 15 min. formation of foam indicates Saponin.

Anthocyanin:2 ml of aqueous extract is added to 2 ml of 2N HCl & NH_3, the appearance of pink red turns blue violet indicates presence of Anthocyanin.

Coumarin:3 ml of 10% NaOH was added to 2 ml of aqueous extract formation of yellow colour indicates coumarins.

Emodins:2 ml of NH_4OH and 3 ml of benzene was added to extract appearance of red colour indicates presence of emodins.

Alkaloids: A quantity (3 ml) of concentrated extract was taken into a test tube and 1 ml HCl was added. The mixture was heated gently for 20 min cooled and filter, the filtrate was used for following test.

a) Wagner test: 1ml of the extract was treated with Wagner's reagent; formation of brown reddish precipitate indicates presence of alkaloids.

b) Hager's test: 1ml of the extract was treated with Hager's reagent, presence of alkaloids confirmed by the yellow colored precipitate.

Proteins: Xanthoproteic test:

Extract was treated with few drops of concentrated HNO_3 formation of yellow indicates the presence of proteins.

Amino acids: Ninhydrin test: In 2 ml extract 2 ml ninhydrin reagent was added & boil for few minutes, formation of blue colour indicates the presence of amino acid.

Carbohydrate: Extract were dissolved individually in 5ml of distilled water and filtered. The filtrate was used for the following test.

a) Molisch's Test: - Filtrate were treated with 2 drops of alcoholic á-naphthol solution, formation of violet ring at the junction indicates the presence of carbohydrate.

b) Iodine Test:- 2ml of extract were treated with 5 drops of Iodine solution, gives blue color indicates the positive test

c) Fehling Test: - 2ml of extract were hydrolyzed with dilute HCl and neutralized with alkali & heated with Fehling's solution A and B, formation of red ppt indicates the presence of reducing sugar.

d) Benedict's test: - Filtrate were treated with Benedict's reagent and heated gently, orange red ppt indicates the presence of reducing sugar.

Flavonoid: a) Alkaline reagent test :- Extract was treated with 10 % NaOH solution, formation of intense yellow colour indicates presence of Flavonoid.

b) NH_4OH test :- 3 ml of extract were 10 % NH_4OH solution development of yellow fluorescence indicates positive test.

c) Mg turning test :- Extract were treated with Mg turning and add conc.HCl to this solution add 5ml of 95 % ethanol, formation of crimson red colour indicates Flavonoid.

d) Zn test:- 2 ml extract were treated with Zn dust and conc.HCl development of red colour indicates presence of Flavonoid.

Diterpenes Copper acetate test: - Extract were dissolved in water and treated with 10 drops of copper acetate solution, formation of emerald green colour indicates presence of diterpenes.

Phytosterol Salkowski's test: - Extract was

treated with chloroform and filtered. The filtrate was treated with few drops of concentrated H2SO4 and shakes, allow standing, appearance of golden red indicates the positive test.

Phenol Ferric Chloride test: - Test extract were treated with 4 drops of Alcoholic FeCl3 solution. Formation of bluish black colour indicates the presence of Phenol.

Phlobatannins: Deposition of red ppt when aqueous extract of each plant sample is boiled with 1% Aqueous HCl was taken as evidence for presence of Phlobatannins.

Leucoanthocyanin: 5 ml of isoamyl alcohol added to 5 ml of aqueous extract, upper layer appear red in colour indicates the presence of Leuanthocyanin.

Cardial Glycosides Keller-Killani Test: - Plant extract treated with 2 ml glacial acetic acid containing a drop of $FeCl_3$ .A brown colour ring indicates the presence of positive test.

Table No. 1: Phytochemical Analysis of leaves of Moringa oleifera Lam.

Sr.No	Phytochemicals	Ethanolic Extract	Chloroformic Extract
1	Steroids	+	+
2	Tannin		
	Lead acetate	+	-
	Ferric chloride	+	+
3	Saponin	+	+
4	Anthocyanin	-	-
5	Coumarins	+	-
6	Emodins	+	+
7	Alkaloids		
	Wagner Test	+	-
	Hager Test	+	+
8	Protein's	+	+
9	Amino acids	-	-
	Ninhydrin Test		
10	Carbohydrat		
	Molisch's test	-	+
	Benedict's test	-	-
	Fehling test	-	-
	Iodine Test	-	-
11	Flavonoids		
	Alkaline reagent test	+	+
	NH_4OH	+	+
	Mg turning test	-	+
	Zn Test	+	-
12	Diterpene's	-	+
13	Phytosterol	-	-
14	Phenol	-	+
15	Phlobatannins	+	-
16	Leucoanthocyanine	-	-
17	Cardial Glycosides	+	+

Results and Discussion:-

The present study reveals the detection of seventeen photochemical from ethanolic and chloroformic extraction of leaves of moringa oliefera Lam. It was observed from the table the ethanolic extract shows the positive test for the presence of Steroids,tannin,saponin, coumarins, emodins, alkaloids, Protein's, in case of Flavonoids Alkaline reagent test,NH_4OH and zinc test shows positive test while Mg turning test shows absnce. Ethanolic extracts also indicates the presence of Phlobatannins and Cardial Glycosides

Chloroformic extracts shows the presence of steroids, Saponin, Emodins, Protein's, Diterpene's, Phenol and Cardial Glycosides. Lead acetate test shows the absence of tannin while the ferric chloride test shows the presence of tannin. Wagner test indicates the absence alkaloid while hagers test

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