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EXTRACTION AND BIO-EVALUTION OF ZIZIPHUS SATIVA LEAVES

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Abstract:-

The leaves of ZiziphusSativas were extracted separately with water and ether. The ash analysis, phytochemical analysis and fluorescent tests were also recorded. The leaves shows presence of tannin, terpenes, saponin in water whereas ether extracts possess only saponin

Keywords:-total ash, water extraction, ether extraction, TLC,

INTRODUCTION:-

Different type of species of Ziziphus used medicinally in India, China, Japan. The plant Ziziphus sativa is also known as Ber,jujube. It is taxonomically belongs to the family *Rhamnaceae*. It is mostly found almost all part of area. The leaves used for hypoglycemic effect, reduction of sweetness judgments, as diuretic, emollient, expectorant to promote hair growth, anticancer, sedative blood purified and in treatment of diarrhea. Fruits used as liver tonic, as an antioxidant, hepatoprotective, protective effect weight gain, increases stamina and reported to have anticancer effect. chemically [1].Herbal medicines are the stable of medical treatment in many developing countries. Herbal preparations are used for virtually all minor ailments .individual herbal medicines in developing regions very considerably, healers in each region have learned over centuries which local herbs have medicinal worth[2]. Ber is a cross pollinated crop and generally propagated by seeds. As such variability exists among these genotypes. Improved varieties are multiplied by vegetative propagation and mostly cultivated in satkhaira, Rajshahi and comilla. The ber is a highly nutritive fruit .it is also a good source of vitamins and minerals. The physiological and biochemical characteristics are the qualitative indexes of any fruit for fresh consumption. Little information about its export is still unknown though. It has great export potential[3].

Various scientist have reported variation among ber cultivars. i.e in response to different pruning treatment and plant to plant spacing. Maximum and minimum leaf area of ber to ber to

be 25.87cm^{2}to 32.40cm^2 [4]. the fruit are used in Chinese and Korean traditional medicine, where they are believed to alleviate stress and traditionally for antifungal, antibacterial, antiulcer, anti-inflammatory, sedative, antispastic, hypotensive and antinephritic, cardiotonic, antioxidant and wound healing properties[5]. The name ziziphus is related to an Arabic word and ancient Greeks used the word ziziphon for the jujube. There are two major domesticated jujubes,Z. mauritiana lam and Z. jujuba mill the common jujube[6]. Ultrasonic extraction polysaccharides from plant material due to its high extraction efficiency However, ultra-sonication can change the structures of the polysaccharides to some extent . In this paper, the effects of ultrasonic power, extraction time, extraction temperature on the yield and the antioxidant activity of water soluble polysaccharides of Ziziphusjujuba Mill. were investigated by response surface methodology[7]. Diabetes is a heterogeneous group of metabolic disorders characterized physiologically by deficiency in insulin or insulin activity and clinically by hyperglycemia or impaired glucose tolerance and other manifest able disorders. Hyperglycemia is due to deficiency of insulin secretionor resistance of the body cells to the action of insulin, often associated with carbohydrate, protein and lipid metabolism. These metabolic disturbances result in acute and long term diabetic complications, which are responsible for premature death and disability[8].

EXPERIMENTAL METHODS:-

The fresh leaves of Ziziphus sativa was collected in December, 2014. From Himayat bagh Aurangabad district (Maharashtra, India) and Identified by the Department Botany Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Maharashtra India). The fresh leaves were dried under shade for8 days. After 8 days leaves were grinded and store in closed containers for further use. The powder or samples was extracted with different solvent ranging from non polar to polar solvent.

ASH VALUE:-

Total ash:- About 10 gm of powdered leaves was accurately weighed and taken in a silica crucible, which was previously ignited and weight. The powder was spread as a fine even layer on the bottom of the crucible. The crucible was incinerated gradually by increasing temperature

to make. It dull red hot until free form carbon. The crucible was cooled and weighed. The procedure was repeated to get constant weight.

Acid soluble ash:-About 0.3 gm of ash was dissolved in 25ml of 2N HCl and filtered insoluble ash was collected on an ashless filter paper and washed with hot water. Insoluble ash was transferred into a silica crucible, ignited, weighed and calculated in percentage.shown table no 1

Water soluble ash :-0.3 gm of ash was dissolved in the 25 ml distilled water. The insoluble matter was collected on whattmann filter paper or ashless filter paper. The insoluble ash was transferred into silica crucible, ignited for 35 minutes and weighed. The procedure was repeated to get a constant weight. The weightof insoluble matter was subtracted from the weight of the total ashand calculated water soluble ash in percentage shown table no 1 the result of total ash, acid soluble ash, water soluble ash are of Ziziphus sativa are summarized in table 1.

Water extraction :-About 10 gm of powdered sample and 35 ml water kept in Round bottom flask. Water condenser was arranged and refluxed 3 hrs. After cooling extraction was filtered with whattmann filter paper. Residue was dried and weight taken soluble compound was calculated in percentage. Result are shown table 2.

Ether extraction :-About 10 gm of powdered sample and 300ml ether Kept in Round bottom flask. Soxhlet was arranged and refluxed for 6 hrs. Completed extraction was remove and dried,weighedand calculated in the percentage.

PHYTOCHEMICAL TEST OF ZIZIPHUS JUJUBE LEAVES:-The successive extracts of water extracts, diethyl ether were subjected to various chemical tests for the identification of the phyto-constituents. Result shown table 3.

MICROBIAL ACTIVITY:- Antimicrobial activity of Ziphus sativa was determined against bacterial strain, salmonella typhy, E. coli, staphylococcus acercus, bacillus sabtilis be well diffusion assay an agar plate. The bacterial culture were grown on Nutrient broth for 24 hrs. the actively grown nutrient agar plate by sprade plate method, well was prepared by barrer. 20m l sample was poured, in the well streptomycin antibiotic is used are a standard.

MICROCHEMICAL TEST:-The behaviourot the leaves of Ziziphus sativa with different chemicals was carried out to observe the colourchanges under ordinary light. (The result shown in table 4)

RESULT:-

TABLE 1:- ASHVALUE OF ZIZIPHUS SATIVA LEAVES: -

Type of ash	Percentage (%)
Total ash	6.62%
Acid soluble ash	95.3%
Water soluble ash	26.6%

TABLE 2:- WATER AND ETHER EXTRATION:-

Type of extraction	Percentage(%)
Water extraction	6.88%
Ether extraction	7.1%

TABLE:- 3 - PHYTOCHEMICAL TEST OF THE EXTRACT OF ZIZIPHUS SATIVA LEAVES

Test	Water extract	Ether extract
Flavonoids	_	_
Alkaloids	_	_
Tannins	+	_
Terpenes	+	_
Saponins	+	+
Carbohydrates	+	_

(+ = present, - = absent)

TABLE:- 4 - COLOUR TEST OF ZIZIPHUS SATIVA

Treatment	Observation
Powder	green
P+1N NaOH	Wine red
P+1N HCl	Greenish brown

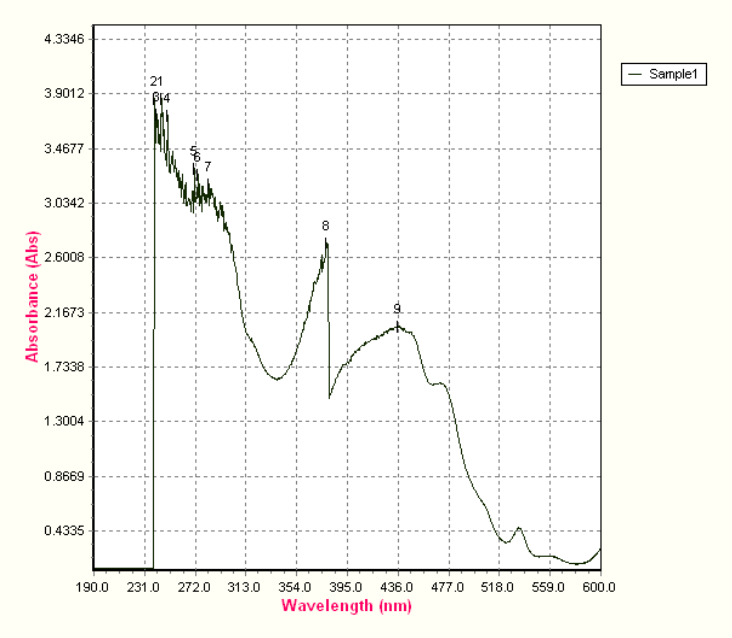
P+ 5% KOH	Yellowish green
P+ 50% H_2SO_4	Light green
P+ 50% nitric acid	yellow
P+conc nitric acid	organge
P+conc H_2SO_4	Blackish brown
P+ concHCl	green
P+ picric acid	No change
P+ acetic acid	green

Image of anti microbial activity

UV spectra of water extraction:

It shows λ^{max} = 193 nm

UV spectra of ether extraction:



It shows λ^{max} = 245 nm

DISCUSSION AND CONCLUSION:-

Ziziphus sativa is a widely traditionally used and potent medicinal plant amongst all the thousants of medicinal plants that presence of saponins, tannins, terpens, carbohydrate (table 3) microbial test with different chemicals and acid was determined in ordinary light (table 4) physical parameter f Ziziphus sativa leaves powder like total ash(6.62%) acid soluble (95.3%)and water soluble (26.6%) the ether extraction and water extraction are 7.1% and 6.88% respectively.

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