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INVITRO EVALUATION OF ANTIMICROBIAL, ANTIOXIDENT, ACTIVITY OF JETROPA GOSSYPIIFOLIA

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ABSTRACT

Aim: • To evaluate the Antimicrobial, Anti Oxidant Activity of Jetropha gossypiifolia. **Objectives:** • Jetropha gossypiifolia is a rich bioresource for traditional medicines from ancient times till date. • The present study aimed to investigate the anti oxidant and anti microbial activity in vitro of the ethanolic and aqueous extract from the leaves, stem and root of Jetropa gossypiifolia

KEYWORDS: • Anti microbial, Anti oxidants, jetropha gossypiifolia.

INTRODUCTION

Antioxidants Vitamin E rich foods Flavonoids, flavones, catechins, polyphenols, and phytoestrogens are all types of antioxidants and phytonutrients, and they are all found in plant-based foods. Each antioxidant serves a different function and is not interchangeable with another. This is why it is important to have to have a varied diet.

Food Sources

Pomegranate, Dairy produce, eggs, and liver, Most fruits and vegetables, especially berries, oranges, and bell peppers, Nutsand seeds, sunflower and other vegetable oils, andgreen, coloured fruits and vegetables, such ascarrots, peas, spinach and mangoes, Green, leafy vegetables, corn, papaya, and oranges, Eggplants,Legumes such as black beans or kidney beans, Green and black teas, red grapes, Dark chocolate, Pomegranates.[14]

Antioxidants

By Inhibition of cell wall synthesis, Inhibition of protein synthesis, Inhibition of bacterial nucleic acid synthesis Antibacterial is an agent that interferes with the growth and reproduction of bacteria. These agents kill or prevent bacteriabiphenyl Compounds.[15] Hydrazones Picrate's. Plant Extracts. Solvents. 1,1- diphenyl-2-picrylhydrazyl.[16] MECHANISM OF ACTION: Oxidation of alcohols is basically a twostep process. The first step involves the formation of chromate esters. In the mechanism that alcohols react with carboxylic acids, phosphoric acid, and sulfonic to produce various types of the same is true for chromic acid and they react with alcohols to produce chromateesters. Once the chromate ester is formed, it undergoes an elimination reaction to generate thecarbonyl group of the aldehyde or ketone.

Antioxidants are substances that can prevent or slow damage to cells caused by free radicals, unstable molecules that the body produces as a reaction to environmental and other pressures. They are sometimes called "free-radical scavengers." The sources of antioxidants can be natural or artificial. Certain plantbased foods arethought to be rich in antioxidants. Plant-based antioxidants are a kind of phytonutrient, or plant-based nutrient.[18]

ANTI OXIDADENT

•Preparation of fraction Extracts Solution.
•Antioxident Procedure.
1.600 micro ml of h2o2 in three different test tube. 1.100micro ml of plant extract or standards 0.
2. Make up the volume to 4 ml with.
3. An identical reaction mixture with sample serves as control.
4. Incubate all the test tubes for 10 mins at room temperature.
5. Measure absorbance of h202 soln at 230m against blank[phosphate buffer].

H202 scavenging activity is caluclated by the formula:Scavenging (absorbance of control -absobance of sample].
•H_(2]*O_(2) scavenginig matrix effect&\%&=&A^ - A A^ *100.

Anti Microbial
•Antimicrobial activity was measured using methods of disc diffusion plates on agar(RONALD, 1990). In order to test the antifungal activity, the fractions of spice extracts were dissolved in DMSO.
•Twenty mL of Sabouraud Dextrose Agar (Oxoid) was poured into each 15 em Petri dish. A. niger were grown in Sabouraud Dextrose Broth (Difco) at27-C for 48 h. One hundred L of suspension was placed over agar in Petri dishes and dispersed. Then, sterile paper discs (6 mm diameter) were placed on agar to load 10 and 15 ML of each spice sample (1 mg/ml.).One hundred units of nystatin, obtained from a local pharmacy, was used as a positive control and DMSO as a negative control. Inhibition zones were determined after incubation at 27-C for 48 h. All tests were done in triplicate.
Inhibited zone was calculated for each fraction as mean ‡ SD (standard deviation).

PLANT PROFILE
Natural world has gifted us with many herbs having mystical dragging properties that are used widely in number of ailments.

The use of herbs and medicinal plants as the first medicines is a universal phenomenon. Today, as much as 80% of the world's population depends on traditional medicine as primary health care needs. Ayurveda is an intricate system of healing that originated in India thousands of years ago. Herbal blends and formulations combine the benefits of multiple herbs, which typically produce a synergistic action while minimizing the potential toxic effects of a single herb. Herbs provide many unique qualities that are very limited in conventional medicine, such as anti-cancer, antiviral and immune regulation properties. Herbs are an excellent alternative to antibiotics in the treatment of infectious diseases, with wider antibacterial effects as well as various anti - fungal and antiviral actions. Some herbal formulations serve as detoxification agents, antioxidants, and anti-cancer therapies. The present work objectives are to investigate indigenous plants used in protection against cognitive dysfunction in India (6). We hereby reported our findings related to antimicrobial activities of plant Jatropha gossyptifolia (Euphorbiaceae)(7).

Chemical Constituents.
The extractive values were calculated based on the difference between the empty weigh of the vessel and extract. The extractive value for hexane extract is 0.14 g, chloroform extra 0.19 g, ethyl acetate extract 0.23 g, ethanol extract 0.48 g and water extract 0.90 g per 5 g of raw material (Dry leaf powder).

Quantification of major phytochemicals showed 3.35 mg/kgalkaloids, 3.60 mg/kg flavonoids, 0.22 mg/kg tannins and 0.12 mg/kg glycosides in ethyl acetate extract of J. gossypifolia.

THERAPEUTIC USES
The root bark of J. goropifolia resembles Ipecac in its action and is for its.

MATERIAL AND METHODS
Experimental
The following experimental characterization quadrangularis by soxhletb of the extract
1) Extraction of Cissus methanol apparatus using solvents like methods were used for the.

Materials
Gram positive bacteria
• Staphylococcus aureus Gram negative bacteria
• Mycobacterium varience Bacterial medium
• Nutrient agar medium Apparatus

Beakers (500ml), Spatula, Water bath, Water bath stand, Soxhlet apparatus, Cotton, Wattmann filter paper, China dish, Steam distillation apparatus, Cotton cloth.

Instruments
• Mechanical grinder
• Incubator
• Laminar air flow
• Vaccum evaporator
• Hot air oven
Chemicals: Methanol(250ml), Petroleum jelly.
Crude drugs: Cissus quadrangularis stem powder (120)gms.

EXPERIMENTAL DESIGN
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ANTI MICROBIAL ACTIVITY
The anti microbial activity was performed according to the method. On adult Indian earth worm Pheretima posthuma as it has anatomical and physiological resemblance with the intestinal round worm parasites of human beings. Pheretima posthuma was placed in Petri dish containing twodifferent concentrations (20, 40(mg/ml) andexcept the worm was shaken vigorously; the timedeath of worm (min) was recorded after ascertaining that worm neither moved when shaken nor when given extermal stimulte. The test results were compared with Reference compound Albendazole (20 mg/ml) treated as standard.

Anti Oxidant Activity
Scavenging Activity
The role of a cancer prevention agent is to remove free radicals. The most important mechanism to achieve this goal is the donation of hydrogen to free radicals to convert them to nonreactive species. The donation of hydrogen would remove the odd electron that is

responsible for radical reactivity. Free radicals have been a subject of critical interest among researchers in the previous decade. The wide range of free radical effects in biological systems has sumered interest from many specialists. It has been demonstrated that free radicals assume an important role in the pathogenesis of specific discases and aging. Numerous synthetic cancer prevention agents have presented toxic and/or mutagenic effects; thus. naturally occurring antoxidants have been considered. Synthesized coumarins 1-8 were serened for in vitro scavenging activity utilizing by drogen peroxide. These tested coumarins showed high scavenging activity.

RESULTS

The plant obtained for the research work were identified and authenticated for further phytochemical investigation. The extracts of the plant were subjected for in vitro Antimicrobial studies.

Extraction and yield

Weight of Jetropha gossypiifolia leaf collected: 500gms
Weight of dried Jetropha gossypiifolia leaf : 120gms
Weight of dried jetropha gossypifolia leaf :80gms
Weight of powder subjected to extractionPet ether extract: 20gms
Methanolic extract: 20gmsWeight of vield obtained.
Pet ether extract: 3gms.
Methanol extract: 4gms.
The yield (w/w) from all dried extracts was calculated as Yield (%) (w1/w2) x 100.
Where, WI is weight of extract after lyophilization of solvent
W2 is the weight of the plant powder.

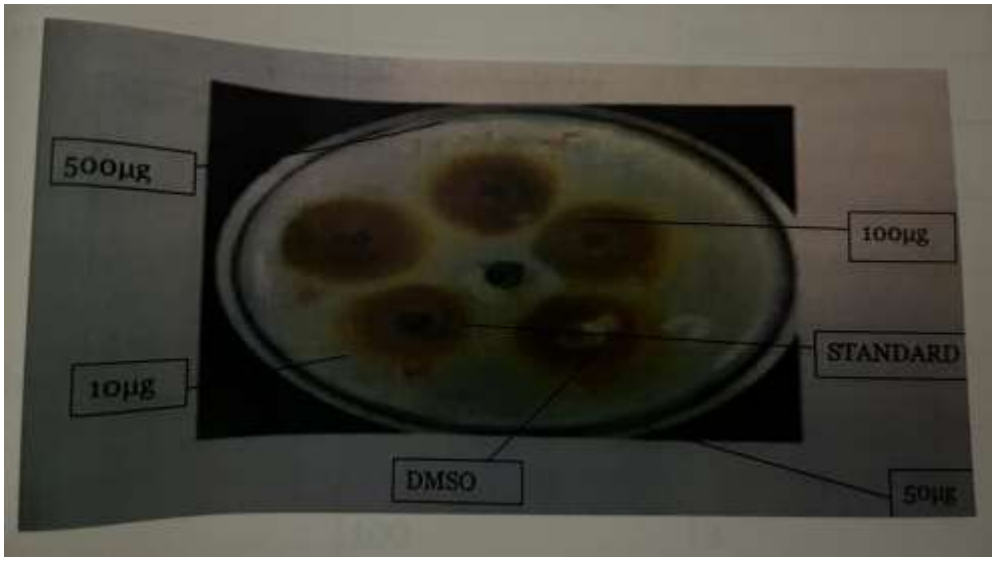

Fig: Anti bacterial assay pet. Ether extract of jatropa gossypiifolia on E.coli.

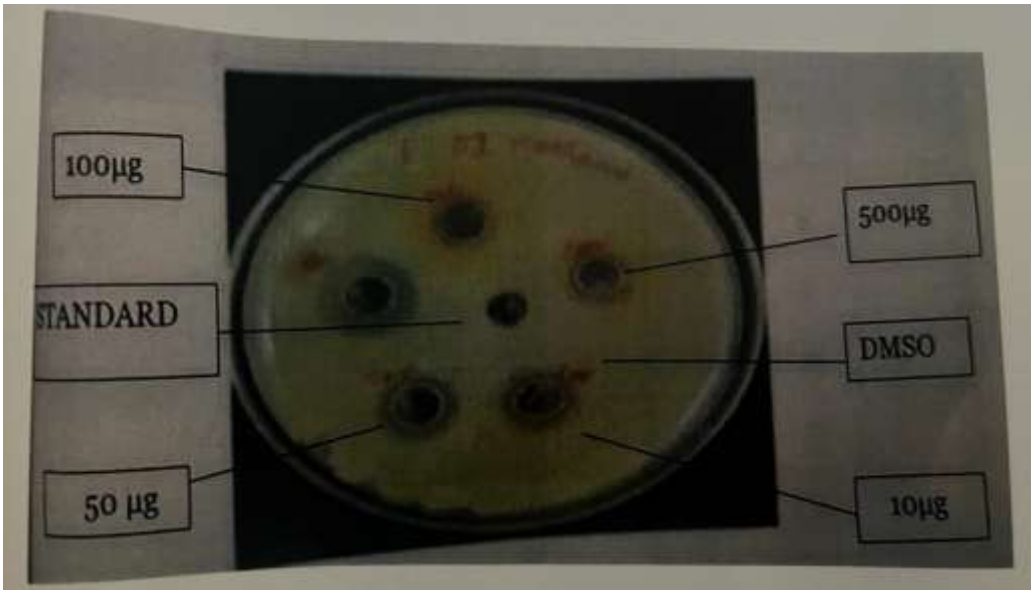

Fig: Anti bacterial assay for Aqueous extract of jatropa gossypiifolia on E.coli.

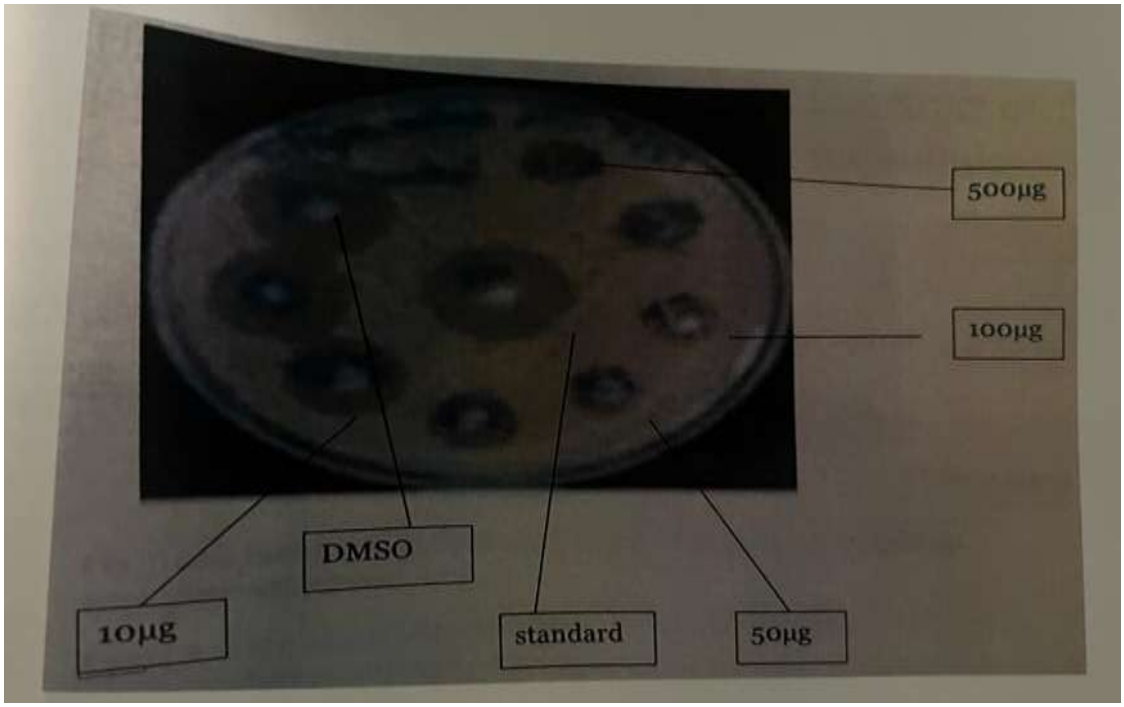

Fig: Anti bacterial assay for Ethanolic extract of jatropa gossypiifolia on E.coli.

Table 2: Anti bacterial assay for different extract from jatropa gossypiifolia on E.coli.

Exracts	Concentration(ug)	Zone of inhibition(in mm)
Pet.ether	10	0
	50	0
	100	0
	500	0
Ethanolic	10	1
	50	2
	100	4
	500	6
Aqueous	10	0
	50	0
	100	0
	500	0
Gentamycin	10	6
DMSO	-	0

Table 3: Antimicrobial potency of Pet.ether extract of jatropa gossypiifolia.

Concentration	Ethanol extract (Abs)
0.1	0.846
0.2	1.020
0.3	1.260
0.4	1.592
0.5	1.763
standard	0.736

CONCLUSION

Anti microbial conclusion

The results obtained from this work showed that plant ethanolic extract of Jatropha gossypifolia screened exhibit antimicrobial effects against Escherichia coli, Staphylococcus aureus & Aspergillus nigar whereas petroleum ether showed inhibitory property against the Aspergillus nigar offer effective bioactive compounds for growth inhibition of microbes.

Further studies are needed to determine the chemical identity of the bioactive compounds responsible for the observed antimicrobial activity.

Antioxidant conclusion

Antioxidant plays an important role to prevent cancer, and other disease. They also have role in slowing aging process and preventing heart disease. So antioxidant are very much necessary for our body But our body can't manufacture these chemicals, so they must be supplied through diet jatropa posses significant antioxidant activity compared with the standard drug vit.c[ascorbic acid], Jatropha exhibits efficient antioxidant activity at 0.5 Mg/ml concentration compared to the standard drug vit. (ascorbic acid).

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