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Research Article

PHARMACOGNOSTICAL PROFILES ON *CICHORIUM INTYBUS* LINN., LEAVES

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ABSTRACT
India has one the oldest, richest and most diverse cultural traditions associated with the use of medicinal plants. The remarkable fact is that is it still living tradition. The members of resistant of microbial pathogens are growing since penicillin resistant and multi resistant microbes cause a major problem. Now compounds inhibiting microorganism, such as benzoin and emotion have been isolated from plants may inhibit bacteria by a different mechanism than the presently used antibiotics and may have clinical value in treatment of resistant microbial strain. The present study shows the Antibacterial & antifungal activity ethanolic extract of leaf of *C. intybus Linn* was carried out by pour plate technique antibacterial activity of the extract was measured in terms of zone of inhibition. From antimicrobial study, the leaf has very good sensitivity against both gram+ve and gram-ve organisms and fungi. The highest % of zone of inhibition indicates that the leaf can be very well useful in candidiaisi.

Key words: *Cichorium intybus*, anti bacterial activity, anti fungal activity, Pharmacognostical profile.

INTRODUCTION

Cichorium intybus is an erect, usually rough and more or less glandular, perennial herb, juice milky, stems 0.3-0.9m , angled or grooved, branches tough, rigid spreading radical and lower leaves 7.5-15cm, pinatified, lobes toothed, pointing downwards, upper leaves alternate, small entire heads ligulate, 2.5-3.8cm, diameter terminal and solitary or axillary and cluster, sessile or on short, thick stalks. Involurce of about 8 inner bracts and a few outer smaller ones, pappies of 1 or 2 series of short blunt erect scales, every long spreading, 5 toothed, style – arms long. Achenes smooth, angled crowned with the ring of pappus scales.

C.Intybus Linn is used medicinally in Europe and California root of C. Endivia Linn. And C. Intybus Linn. In Portugal and root and leaves of *C.Intybus* Linn. In France are also used medicinally.

MATERIALS AND METHODS

Plant material

The leaves were collected from Local market, katpadi, Vellore Dist, Taxonomically identified by comparing with the literature. A voucher specimen of the same was deposited in the herbarium collection of the pharmacognosy Museum, SLN College of pharmacy, and authentified by Madhava Chetty botanist, S.V.university, Tirupathi.

Method for anatomical studies

Permanent slide preparations were made from 3 areas of the leaf, via, leaf base middle lamina, apex according to standard procedures.

Photomicrography

Photo micrographs were made at different magnifications up on the anatomical details to be brought out. Photo micrography was done on the Olympus Bx60 system microscope attachment with **OLYMPUS PM20** automatic photo micrographic system, manufacturer: Olympus optical Co. Ltd. 43-2, Hatagya 2-chome, Shibuya-ku, Tokyo, Japan.

STUDY OF ANTIBACTERIAL ACTIVITY

Nutrient agar media to a volume of 500ml is prepared, sterilized in an autoclave at 12 c at 15 psi. Now 25ml quantities of this media are transferred to conical flasks previously sterilized. All the procedures carried out in aseptic conditions. Now, each flask containing media is inoculated with each one of the following organisms.

E-coli, Pseudomonas aerogenosa, Pneumocci, Streptococcus pyogenos. Klebsiella Pneumoniae.

Now, the inoculated media is poured in petri dishes (previously sterilized) by pour plate techniques. It is allowed to solidity by keeping aside at room temperature for 10 minutes.

Now, the media is bored at the center by means of pipette or any other suitable device which is previously sterilized.

About 30mng of crude extract is now placed at the bored hole, in the media. The Petri dishes are incubated for 24hrs, in an incubator at a temperature of 35'c+2'c.

STUDY OF ANTIFUNGAL ACTIVITY

Sabouraud's media to a volume of 100ml is prepared, sterilized in an autoclave at 121'C at 15psi. Now 50ml of this media is transferred while hot to two previously sterilized conical flasks, in aseptic condition. Now each of the flasks is inoculated at 40'C temperature of media with each one of the following strains of fungi.

Candia albicans

Aspegillus niger

Now the inoculated media is spread over petri dishes (previously sterilized) by pour plate technique. It is allowed to solidify by keeping aside for 10 minutes.

The media is then bored at the center to form a hole by pipette or any suitable device which is previously sterilized.

About 30mg of crude drug is now placed at the bored holes in the media. The media is then incubated at 35'C+2'C. The zone of inhibition is noted for 24hrs and 72hrs.

RESULTS

LEAF CONSTANTS

TABLE 1 Various leaf contents are determined according to standard procedures. The results are given in the following table.

Ash Value		
Total ash		20% w/w
Water soluble ash		12.7%w/w
Acid insoluble ash		0.92%w/w
Quantitative Microscopy		Nil
		2-3.2-6
Palisade ratio		3-4.5-6
Vein islet number		18-21.2-24
Veinlet termination number		16-20.4-23
Stomatal index	L.E	25
	U.E	23
Stomatal number	L.E	164.4to232.9 micrometer
	U.E	
Trichome length		
Water soluble extractive value		20% w/w

MICROCHEMICAL TESTS

TABLE II The T.S. of leaf answers the tests for lignin, cellulose, cuticle, starch.

Test for	Inference
1. Lignin: T.S. + Phloroglucinol	+ ve
2. Cellulose test	
3. Cuticle T.S.+ Sudan red	+ ve
4. Starch T.S. + Iodine Solution	+ ve + ve

TABLE III ANTI-MICROBIAL ACTIVITY: (After 24 hrs. of incubation)

Organism	Sensitivity	Zone of inhibition (Diametric in cms.)	% of inhibition (100-C-A/C X 100)
Escherichia coli	+	3.5	17.37%
Pseudomonas aerogenosa	+	3.4	15.9%
Klebsiella pneumonia	+	3.6	18.37%
Pneumococcus	+	3.5	16.95%
Streptococcus pyogenes	+	3.2	15.59%

TABLE IV ANTIFUNGAL ACTIVITY: (AFTER 24 HRS & 72 HRS. OF INCUBATION)

Organism	Sensitivity		Zone of inhibition (diameter in cms.)		% of inhibition [100-(C-A/CX100)]	
	24 hrs	72 hrs	24 hrs	72 hrs	24 hrs	72 hrs
Candida albicans	+	_	5.3	-	34.7%	0
Aspergillus niger	+	-	3.3	-	13.43%	0

Chromatographic Profile

Chromatographic characterization was done for the crude *Cichorium intybus* by TLC method ethanol extract consists three compounds were found to be major.

Rf values : 1.5 cm
2.0 cm
2.5 cm

Solvent front = 5.8 cm

Rf = Distance Traveled by Solute / Distance Traveled by Solvent front

1st Rf Value = 0.258 cm
2nd Rf value = 0.344 cm
3rd Rf value = 0.431 cm

Solvent System used : Benzene: chloroform (1:1)
Total no of spots : Three (3)
Detecting Agent : potassium permanganate.
Concentration : 1mg/ml.

RESULTS AND DISSCUSSION

A systemic study of crude drug embraces through consideration of both primary and secondary metabolites derive as a results of plant metabolism. The leaves were subjected to preliminary phytochemical screening for the detection of various plant constituents. The aqueous extract was prepared by cold maceration method with cold distilled water for 24 hours with frequent shaking. The macerate was filtered and evaporated to complete dryness in china dish. The extract obtained was then used to carry out qualitative test for identification of various plant constituents.

The leaf of *C intybus* Linn is broad with winged petiole, lobed margin, membranous, thin, hairs on ventral surface. In the midrib region, the leaf possess lactiferous of non-articulated type, which complies with the features of composite family. Palisades are absent in leaf and possibly are modified into lactiferous in that region also.

From anti microbial study, the leaf has very good sensitivity against both gram+ve and gram-ve organisms and fungi. The highest % of zone of inhibition indicates that the leaf can be very well useful in candidiaisi, chich requires further confirmative study.

The extracts were subjected to preliminary phytochemical analysis, which revealed the presens of glycosides, steroids, alkaloids, terpenoids and carbohydrates.

Antibacterial & antifungal activity ethanolic extract was carried out by pour plate technique antibacterial activity of the extract was measured in terms of zone of inhibition.

Chromatographic profile characterization was done for the crude *Cichorium intybus* by TLC method extract consists three compounds were found to be major spots with Retardation factor values as 0.258, 0.344, and 0.431.

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