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In Vitro Analysis of Antioxidant and Antimicrobial Properties of Tephrosia Purpurea

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ABSTRACT
Tephrosia purpurea is a flowering plant that has a pantropical distribution. It is throughout found in india and srilanka A decoction of the roots is given in dyspepsia, diarrhea, rheumatism, asthma and urinary disorders. Two native plants, Tephrosia purpurea (Linn.) Pers. (Fabaceae) and Mimusops elengi (Linn.) (Sapotaceae) were screened for their antimicrobial activity. Preliminary testing of antimicrobial activity of T. purpurea against 3 standard cultures In addition, ethonolic extracts were prepared from the bark of M. elengi and tested for its antimicrobial activity against the above bacterial isolates. Present work was undertaken to study antioxidant potential of the plant. It can be concluded that the aqueous extract of T. purpurea L. root can be used as antioxidant and it can be recommended for the treatment of various disease. The study concluded that the ethanolic extract of T. purpurea exhibits antioxidant activity in vivo and the ethyl acetate soluble fraction has improved antioxidant potential than the extract.

Keywords: *Tehrosia purpurea*, Phytochemical properties, AntiMicrobial , Antioxidant.

1. INTRODUCTION:

Since ancient times, therapeutic plants, often known as medicinal herbs, have been identified and employed in conventional medical procedures.For a variety of purposes, including defense and protection against insects, fungi, illnesses, and herbivorous mammals, plants manufacture hundreds of different chemical compounds. [Jershenzon and Ullah, 2022]

Traditionally, the focus of using medicinal herbs has been on curing rather than preventing illness. Nonetheless, there are several reports from recent studies on the application of medicinal plants and their components in illness prevention in the literature. According to a World Health Organization (WHO) Expert Group, traditional medicine is the culmination of all knowledge and practices—explicable or not—applied to the diagnosis, prevention, and treatment of physical, mental, or social imbalances, with a sole reliance on firsthand knowledge and observation passed down orally or in writing from generation to generation (WHO, 1976). The statement "while bearing in mind the original concept of nature which includes the material world, the sociological environment whether living or dead, and the metaphysical forces of the universe" might be added to further expand this for Africa.

Medicinal plants have been used for these purposes in humans and various animal species;they are effective in treating infectious diseases and infections of different types of external wounds (chronic, deep suppurative, open, lacerated, incised, and ulcerated) [Adetutu,Morgan, andCorcoran, 2011]. The additional advantage of using medicinal plants is that many of the negative consequences of using synthetic

antimicrobials are reduced (Parekh and Chanda, 2007).

Therefore, the purpose of this study was to examine the in vitro antibacterial activity of crude methanolic extracts of particular medicinal plants against common fungi and bacteria that cause infections of the skin and wounds.

The western Himalayas and theupper Gangetic plains are rich in the plant's growth. The herb is often grown as a green manure in tobacco and rubber plantations in other countries, as well as in India's rice fields. It is widely distributed and grows on rocky, sandy, and loamy soils. [Panda *et al.*, 2000]

Before flowering, it is used as fodder in South Africa and India, however reports from Australia indicate that it can poison cattle. For fuel, dried plants are gathered in northern India. The plant has laxative and tonic qualities in all parts. The dried herb has deobstruent and diuretic properties,and can be used to treat bronchitis, bilious febrile episodes, and liver, spleen, and kidney blockages.In addition, it is suggested as a blood purifier, for the treatment of pimples and boils, and as a cheerful remedy. A fruit decoction is used for intestinal worms in southern India, and an extract from the fruit is used to treat inflammatory issues and physical aches. The decoction of the bitter roots is used as an antihelminthic, to treat chronic diarrhea, dyspepsia, and colic, as well as a nematicide against Toxocoracanis larvae, which cause lung disease in Sri Lanka. [Lodhi , Pawar ,Panda. 2000, *et al*., 2006]

Tephrosia purpurea is an upright legume shrub that can grow to a height of 40–80 (-150) cm. It can be an annual or long-lived perennial.

Kingdom	*Plantae* – Plants
Subkingdom	*Tracheobionta* - Vascular plants
Superdivision	*Spermatophyta* - Seed plants
Division	*Magnoliophyta* - Flowering plants
Class	*Magnoliopsida* - Dicotyledons
Subclass	*Rosidae*
Order	*Fabales*
Species	*Tephrosia purpurea*

Well-known for its hepatoprotective, anticancer, antiulcer, antibacterial, and ability to cure bleeding piles, tephrosia purpurea is a herb. Using three different types of wound models in rats— an incision wound, an excision wound, and a dead space wound—the current study sought to determine the potential for wound healing of an ethanolic extract of Tephrosia purpurea (the aerial component) in the form of a straightforward ointment. The outcomes were similar to those of the usual medication Fluticasone propionate ointment in terms of protein level, hydroxyproline content, wound contraction, tensile strength, and histological and biochemical characteristics.

MATERIALS AND METHODS

Collection of plant sample

The *Tephrosia purpurea* (Kolinji) plant were collected from the village Kanurpudur, Tirupur (DT),Tamil Nadu, India.

Preparation of plant extract:

The collected plant leaves were separated and dried under the autoclave for 5 hours to remove moisture and to get in powdered form. The plant extract was prepared by Soxhlet extraction method. 10g of dried

sample was taken and extraction were collected by using three different solvents Methanol, Chloroform and water. The process of extraction was carried out until the solvent in siphon tube reaches 5 cycle. Remaining of extract were stored in refrigerator.

Phytochemical screening of *Tephrosia purpurea*:

Quality Analysis of primary and secondary metabolites in the leaf extract of *Tephrosia purpurea* by standard protocols (Roghini and Vijayalakshmi, 2018).

a) Test for alkaloids

- Mayer's test. Few drops of Mayer's reagent were added to 1 mL of extract. A yellowish or white precipitate was formed, indicating the presence of alkaloids.
- Hager's test. Two milliliters of extract were treated with few drops of Hager's reagent. A yellow precipitate was formed, indicating the presence of alkaloids

b) Test for flavanoids

- Alkaline reagent test. Two to three drops of sodium hydroxide were added to 2 mL of extract.Initially, a deep yellow colour appeared but it gradually became colourless by adding few drops ofdilute HCL, indicating that flavonoids were present.

c) Test for phenolic compounds and tannins

- Ferric chloride test. Two milliliters of 5% neutral ferric chloride solution were added to 1 mLof extract, the dark blue colouring indicating the presence of phenolic compounds and tannins.
- Lead tetra acetic acid test. One milliliter of lead tetra acetate solution was treated with 0.5mL of extract, precipitate formation indicating the presence of phenolic compounds and tannins

d)Tests for proteins

- Biuret test. Two drops of 3% copper sulphate and few drops of 10% sodium hydroxide wereadded to 1 mL of extract, violet or red colour formation indicating that proteins are present.
- Ninhydrin test. Two drops of 0.2% freshly prepared ninhydrin solution added to 1 mL ofextract. Production of purple colour shows the presence of proteins.

e) Test for carbohydrates

- Molish test. Few drops of alcoholic a-naphthol solution were added to 2 mL of extract. Later,few drops of concentrated H2SO4 were added along the walls of test tube. At the junction of twoliquids, a violet colour ring appeared, indicating that carbohydrates were present.
- Benedict's test. To 5 mL of Benedict's reagent, 8-10 drops extract were added, then heatedfor five minutes; the resulting dark red precipitate indicated the presence of carbohydrates

f) Tests for glycosides

Keller Killiani test. A solution of 0.5 mL, containing glacial acetic acid and 2-3 drops of ferric chloride, was mixed with 2 mL of extract. Later, 1 mL of concentrated H2SO4, was added along the walls of the test tube. The appearance of deep blue colour at the junction of two liquids indicated the presence of cardiac glycoside.

g) Tests for saponins

A drop of Na2CO3 solution was added to 5 mL of extract in a test tube. After vigorous shaking,it was left to rest for five minutes. Foam formation indicated the presence of saponins.

h) Test for triterpenoids

Horizon test. Two milliliters of trichloroacetic acid was added to 1 mL of extract. The presenceof terpenoids was confirmed by the formation of a red precipitate.

i) Test for steroids

Salkowski test. The test extract was shaken with chloroform and concentrated H2SO4 wasadded along the walls of a test tube; a red colour appeared, indicating the presence of steroids.

Collection of clinical isolates:

The most common bacterial species that cause wound infection are *Pseudomonas sp, Staphlococcus sureus, E. coli, Klebsiella sp.* (Bhatt *et al,*. 2007). Hence these sample was obtainedfrom the department of microbiology, Kovai Medical Centre and Hospital, Coimbatore for this study.

Antibacterial analysis of extract

The tested bacteria were bought from biolinelaboratory,rspuram,Coimbatore and were grown in nutrient broth and cultured overnight at 37 °C to achieve the turbidity of 0.5 McFarlandstandards giving 1.5 × 108 CFU/mL. Antibacterial activity of plant extracts was performed using the agar-well diffusion method. Mueller-Hinton agar plates were cultured with bacterial suspensions. Wells (6 mm) were drilled into the inoculated media using a sterile cork- borer. A total of 100 µL of plant extracts (aqueous, methanol, and ethanol) were poured separately into eachwell. Then, the plates were kept for 30 min in the refrigerator for better diffusion of the plant extracts into the agar. Gentamicin (P, 10 mg). The tested bacteria were grown in nutrient broth andcultured overnight at 37 °C to achieve the turbidity of 0.5 McFarland standards giving 1.5 × 108 CFU/mL. Antibacterial activity of plant extracts was performed using the agar-well diffusion method. Mueller-Hinton agar plates were cultured with bacterial suspensions. Wells (6 mm) weredrilled into the inoculated media using a sterile cork- borer. A total of 100 µL of plant extracts (aqueous, methanol, and ethanol) were poured separately into each well. Then, the plates were keptfor 30 min in the refrigerator for better diffusion of the plant extracts into the agar. Penicillin G (P,10 mg) and 6 mm disc saturated with methanol served as negative control, which were also loaded.The plate was incubated for 24 h at 37 C. The experiment was repeated thrice and the mean zone of inhibition around the discs was recorded.

Antifungal analysis of extract:

All the extracts were dissolved in DMSO to achieve a concentration of 2400 µg/ml. Microbroth dilution assay for *Candida albicans* was performed as described by (Espinel- Fromtling et al (1993).) *Aspergillus* species cultures were grown on Sabouraud dextrose agar at 37
°C until sporulation occurs, typically for 5 days. The spores were harvested in Abouraud dextrosebroth and the numbers of colony forming units (CFU) per milliliter were determined by plating serial dilutions on Sabouraud dextrose agar plates. For susceptibility tests, serial two-fold dilutionof extracts were made in Sabouraud dextrose in 100 µl volumes and were inoculated with 100 µl of the spore suspensions having 2×10^4 to 2×10^5 CFU/ml in Sabouraud dextrose broth. The cultures were incubated for 48 h at 37 °C (Dabur et al, 2004). MICs were determined at the lowestconcentration that inhibited visible fungal growth.

Antioxdant (DPPH Assay) analysis of extract:

(Kumar *et al.,* (2011)) perform the antioxidant activity of Ethanolic extract of Tephrosia purpureafor in carbon tetrachloride-induced lipid peroxidation in-vivo and superoxide generation in-vivo. The ethyl acetate fraction of the same extract was studied for free radical scavenging and antilipidperoxidation activity. The IC50 values in both of these in-vitro assays were found to be significantly reduced for ethyl acetate fraction compared with the ethanolic extract of the plant. The observation was further supported

by comparing the in-vivo antioxidant activity for both the ethanolic extract and its ethyl acetate fraction. The study concluded that the ethanolic extract of Tephrosia purpurea exhibits antioxidant activity in-vivo and the ethyl acetate soluble fraction hasimproved antioxidant potential than the ethanol extract. 18 Result revealed the chemical constitute of plant is responsible for their free radical scavenging activity and also responsible for their hepatoprotective activity. (Kumari, S; Srivastava, M and Abbasi, P (2014))

MINIMAL INHIBITORY CONCENTRATION:

The minimum inhibitory concentration (MIC) was determined by the micro dilution technique (1024–32 µg/mL). The bacterial growth was accompanied by the colorimetric change of the 0.01%resazurin dye (INLAB, Brazil). The MIC was defined as the lowest concentration of *T. purpurea* extract capable of visually inhibiting microbial growth with no dye color change. Chloramphenicol (100 µg/mL; Sigma-Aldrich, USA) was the negative control for bacterial assays,and nystatin (100 µg/mL; Sigma-Aldrich, USA) and fluconazole (50 µg/mL; Sigma-Aldrich, USA)were the negative controls for yeast and filamentous fungi, respectively. (Cleeland, Squires. 1991).

GCMS ANALYSIS:

The GC-MS spectrum confirmed the presence of various components with different retention timesas illustrated. The mass spectrometer analyzes the compounds eluted at different times to identifythe nature and structure of the compounds. The large compound fragments into small compoundsgiving rise to appearance of peaks at different m/z ratios. These mass spectra are fingerprint of thatcompound which can be identified from the data library. The present study helps to predict the formula and structure of 21 biomolecules. Further investigation may lead to isolation of bio-activecompounds and their structural elucidation and screening of pharmacological activity will be helpful for further drug development. (Khare. *Indian Medicinal Plants.* Springer; 2008.) The phytochemical investigation of methanolic extract was performed on a GC-MS equipment (Thermo Scientific Co.) Thermo GC-TRACE ultra ver.: 5.0, Thermo MS DSQ II. Experimental conditions of GC-MS system were as follows: TR 5-MS capillary standard non-polar column, dimension: 30Mts, ID: 0.25 mm, Film thickness: 0.25µm. Flow rate of mobile phase (carrier gas:He) was set at 1.0 ml/min. In the gas chromatography part, temperature programme (oven temperature) was 40°C raised to 250°C at 5°C/min and injection volume was 1 µl. Samples dissolved in chloroform were run fully at a range of 50-650 m/z and the results were compared byusing Wiley Spectral library search programme.

RESULT AND DISCUSSION:

Plant collection and authentication:

The plant sample was collected from the Kanur pudur village in Tirupur DT and authenticated by the Botanical Survey of India.

Tephrosia purpurea is a species of flowering plant in the family Fabaceae, that has a pantropical distribution. It is a common wasteland weed. In many parts it is under cultivation as green manurecrop. It is found throughout India and Sri Lanka in poor soils. Purple tephrosia is an erect or spreading annual or short-lived perennial herb, sometimes bushy, usually growing from 40 - 80cmtall, rarely up to 1.5 metres. The plant has a range of traditional medicinal uses, being harvested from the wild and used locally. It is also cultivated as a green manure crop.

Tephrosia purpurea.

Extraction:

The collected plant sample was dried using Hot air oven for 5 hours, then to avoid the compoundspresent in the plant. The leaves are then finely powdered using mortar and pestle. 10g of powder was extracted with 100ml of Chloroform, Carbinol and aqueous solution at 60-70 degree Celsius using Soxhlet apparatus. The amount of extract obtained was 100 ml, was stored for the future studies, similarly Carbinol extraction was done using 10g of powder and 100 ml of extract solutionwere collected, 10g of the sample were taken for chloroform extract, the extract was obtained was100ml.

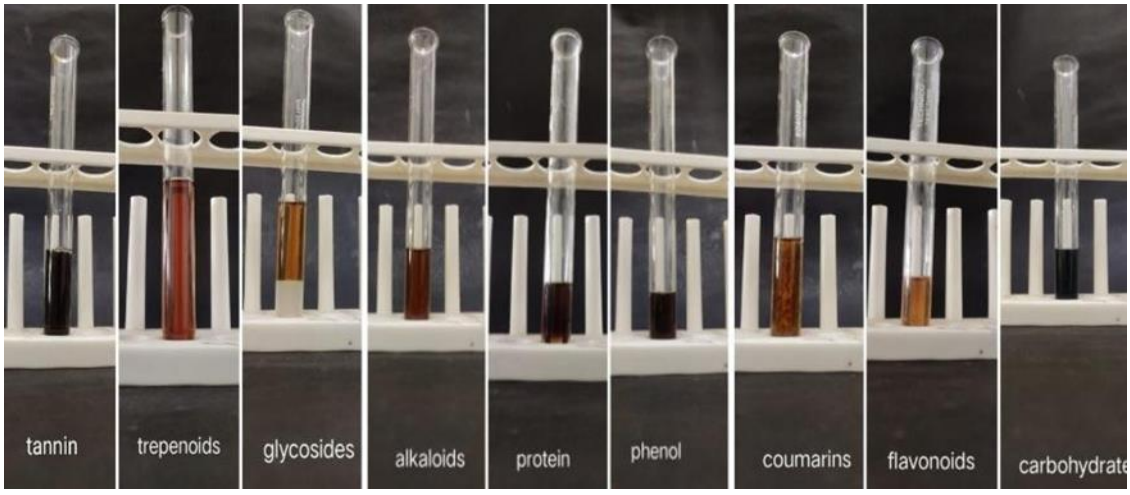
Soxhlet apparatus Extract

The Soxhlet extract uses the solvent reflux and siphon principle to continuously extract the solid matter by pure solvent, which saves the solvent extraction efficiency and high efficiency. The solssample is placed on a thimble-shaped filter paper, positioned into the Soxhlet extractor, and the device is assembled. The solvent is added to the solvent reservoir flask and mounted onto a heatingmantle. After heating, the condensed vapours of the solvent come in contact with the sample powder and the soluble part of the powder gets mixed with the solvent of extraction. When the solvent surface exceeds the maximum height

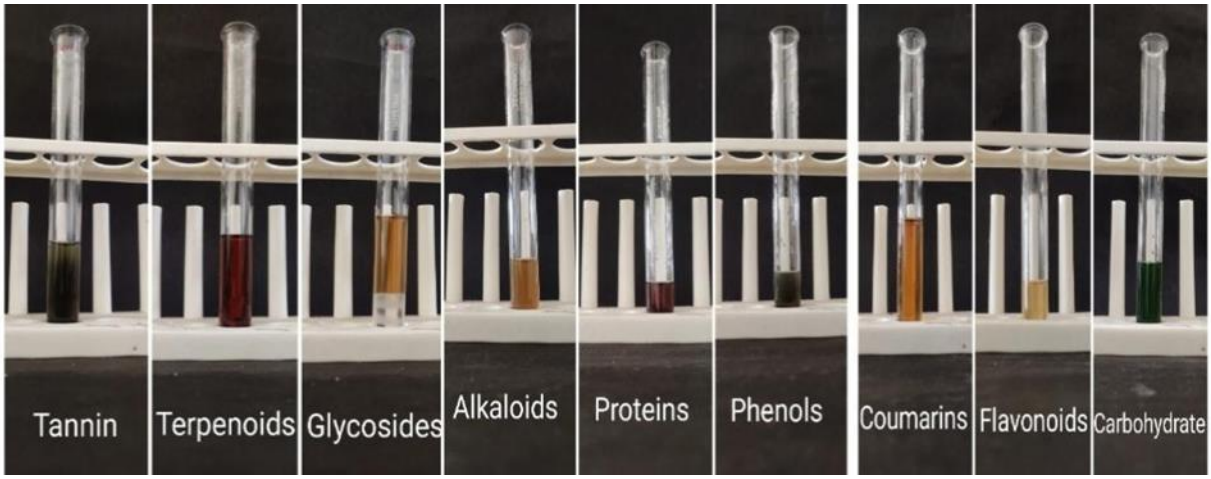
of the siphon, the solvent containing in the siphonedback.

Phytochemical Screening

Phytochemical screening of the ethanolic extract of selected herbal plant revealedthe presence ofcompounds like Tannins,proteins,carbohydrate,terpenoids,flavonoids,coumarins and phenols. Nine kinds of chemical constituents including flavanoids,terpenoids,tannin,coumarins, proteins, carbohydrate, glycosides, phenol and alkaloids were isolated from the leaf extract
of *A.adenophora* . These tests reveal the presence of various bioactive secondary metabolites which contribute to the wound healing activity. Phytochemical screening of the aqueous extract showed the presence of tannins, terpenoids glycosides, alkaloids, phenols, coumarins, flavanoids and carbohydrates. The aqueous and ethanolic extract of the reveals its ability to separate hydrosoluble molecules from the liposoluble molecules. Phytochemical screening not only helps to reveal the constituents of the plant extracts and the one that predominates over the others but also is helpful in searching for bioactive agents those can be used in the synthesis of useful drugs.
Study by (Das *et al*., 2003) revealed that phytochemical screening of plant exhibited alkaloids, saponin, tannin and flavonoids which is similar to my results. The study also revealed that the leaves of *A.adenophora* and these phytochemicals can be uselful in various ways for eithermitigation or prevention of diseases of *A.adenophora* . These tests reveal the presence of various bioactive secondary metabolites which contribute to the wound healing activity. Phytochemical screening of the aqueous extract showed the presence of tannins, terpenoids glycosides, alkaloids, phenols, coumarins, flavanoids and carbohydrates. The aqueous and ethanolic extract of the reveals its ability to separate hydrosoluble molecules from the liposoluble molecules. Phytochemical screening not only helps to reveal the constituents of the plant extracts and the one that predominates over the others but also is helpful in searching for bioactive agents those can be used in the synthesis of useful drugs.



Phytochemical analysis of Chloroform



Phytochemical analysis of Carbinol

RESULT:

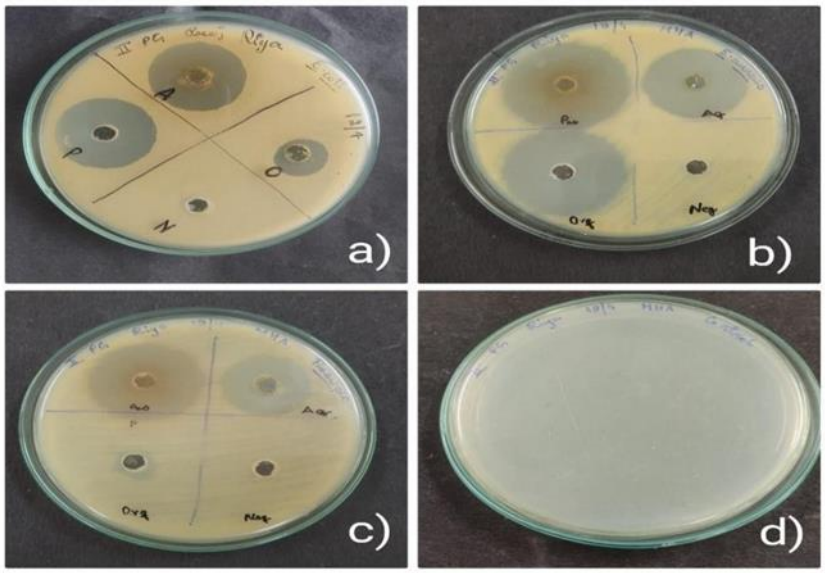
	Phytochemical Screening	Carbinol extract	Chloroformextract
a)	Tannin	Positive	Positive
b)	Terpenoids	Positive	Positive
c)	Glycosides	Negative	Positive
d)	Alkaloids	Positive	Positive
e)	Proteins	Negative	Negative
f)	Phenols	Positive	Positive
g)	Coumarins	Positive	Positive
h)	Flavonoids	Positive	Positive
i)	Carbohydrate	Negative	Positive

Phytochemical characters of *Tephrosia purpurea*

Antibacterial Analysis of the extract:

The antibacterial activity was measured in terms of the diameter of zone of inhibition. Theaqueous and ethanolic extract showed the antibacterial activity against the Gram-positive bacteriaand gram negative bacteria. In case of *E.coli* when compared with the positive control the aqueousextract had a greater zone of inhibition than the ethanolic extract. *Staphylococcus aureus* zone of inhibition for ethanolic extract was found to be greater than aqueous extract when compared withthe positive control Streptomycin. The positive controls zone of inhibition is

almost equal to the aqueous extract when compared with the carbinol extract. Overall, theaqueous extract showed a potent zone of inhibition in all the 3 test organisms. In the study by (Ranjithkumar *et al*., 2014) indicated ethanolic extract showed maximum zone of inhibition against *E.coli* (10mm) and *S. aureus* (9mm) respectively. Chloroform extract also posses the sameZone of inhibition equal to carbinol extract. Aqueous extract showed 7mm inhibition zone against*E.coli* and 8mm inhibition zone against *S. aureus* when compared with other extracts.



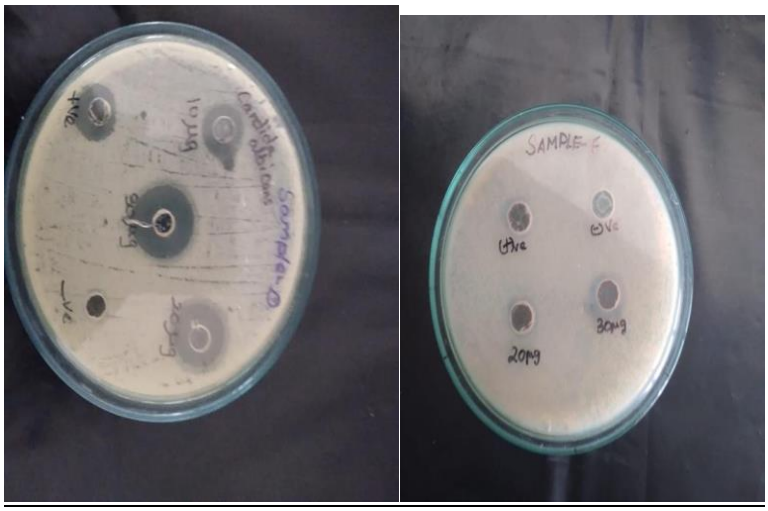
Antimicrobial Analysis of *Tephrosia purpurea*

	Organism	Carbinol	Chloroform	Positive Control	Negative control
a)	*E. coli*	26.67±0.47	14.67±0.47	28mm	No zone
b)	*S. aureus*	32.66±2.29	34.66±1.154	36mm	No zone
c)	*Pseudomonas*	25.3±2.30	11.66±2.08	31mm	No zone

Antibacterial values of the plant (*Tephrosia purpurea)*

Antifungal analysis of extract:

The antifungal activity was measured in terms of the diameter of zone of inhibition. The aqueousand carbinol and chloroform extract showed the antifungal activity against the Candida and aspergillus In case of *candia* when compared with the positive control the aqueous extract had a greater zone of inhibition than the ethanolic extract. *Aspergillus* zone of inhibition for ethanolicextract was found to be greater than aqueous.

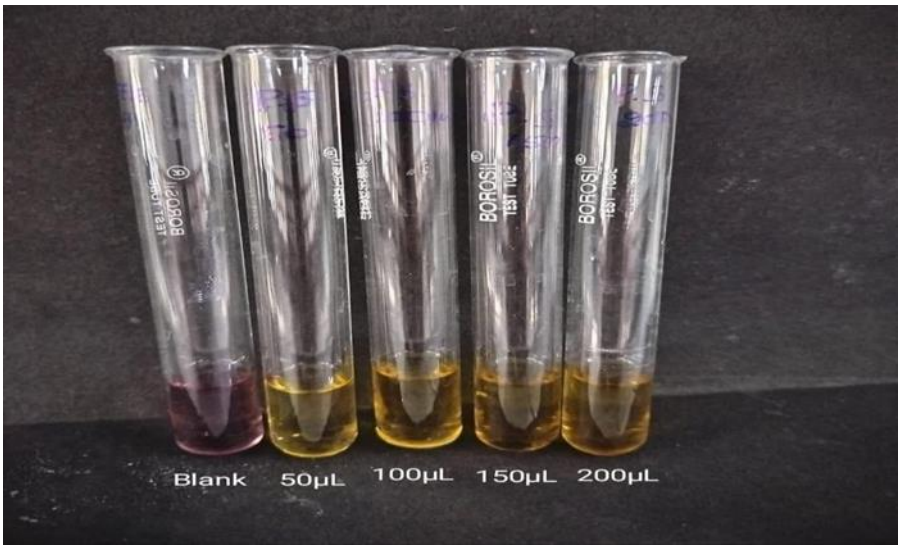


Antifungal test of the plant *Tephrosia purpurea*

	Organism	Carbinol	Chloroform	Positive Control	Negative control
a)	*Candida albicans*	13.66±0.57	19.66±6.65	28mm	No zone
b)	*Aspergillus*	7.66±0.57	5.66±0.576	2mm	No zone

Antioxidant (DPPH Assay) analysis of extract:

Antioxidants are neutralizing chemicals that minimize oxidative damaging to biological processes by giving free radicals electrons and passing them off as harmless [Shantabi *et al*,. 2014]. Free radicals are mostly associated with oxidative stress. The combination of oxygen with specific chemicals results in the generation of free radicals, and then, once created, the potential threat is the damage they may cause when they combine with essential cellular elements such as DNA andproteins, as well as the cell membrane [Archana Gupta., *et al* 2020]. Antioxidants react with freeradicals and may stop damage before it starts by neutralizing them . Secondary metabolites produced by plants include a wide range of antioxidants. As a result, the current work was conducted to investigate the free-radical scavenging capabilities of *Tephrosia purpurea* using theDPPH test technique



Antioxidant assay

conc.	Blank	Sample	%RSA
50	0.42	0.349	16.9047619
100	0.42	0.282	32.85714286
150	0.42	0.262	37.61904762
200	0.42	0.172	59.04761905
250	0.42	0.105	75

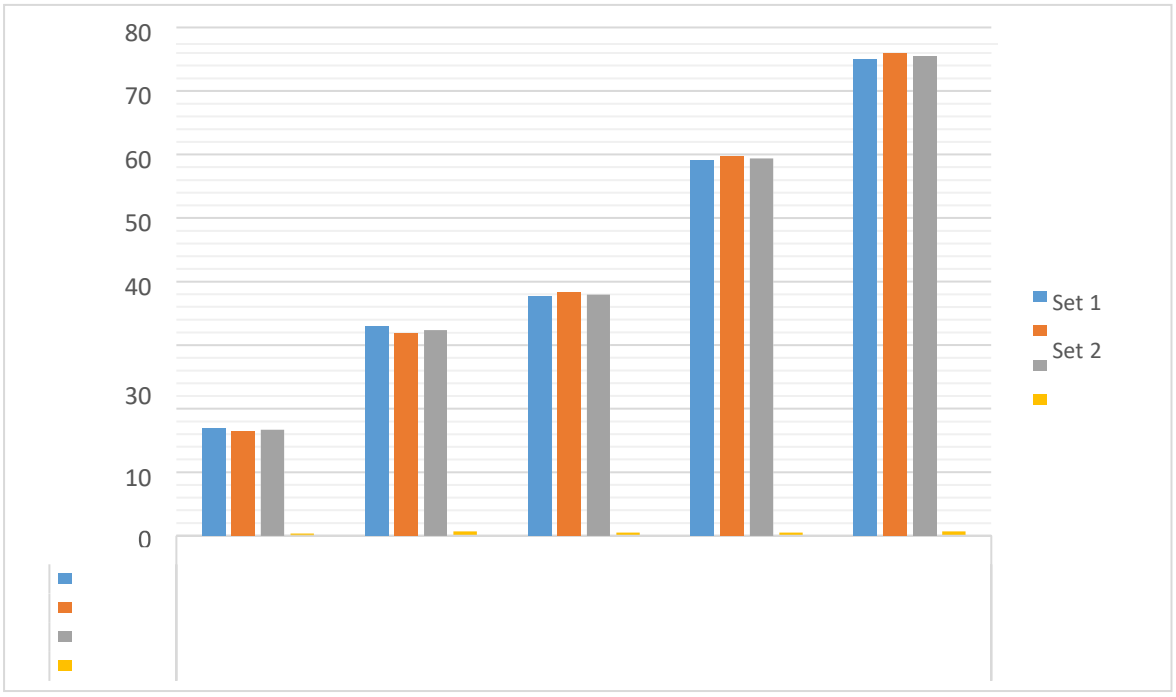
Antioxidant values of *Tephrosia purpurea* (Set 1)

Conc.	Blank	Sample	% RSA
50	0.42	0.351	16.42857143
100	0.42	0.286	31.9047619
150	0.42	0.259	38.33333333
200	0.42	0.169	59.76190476
250	0.42	0.101	75.95238095

Antioxidant values of *Tephrosia purpurea* (Set 2)

Set 1	**Set 2**	**Average %Rsa**	**St.dev**
16.9047619	16.42857143	16.66666667	0.336717515
32.85714286	31.9047619	32.38095238	0.67343503
37.61904762	38.33333333	37.97619048	0.505076272
59.04761905	59.76190476	59.4047619	0.505076272
75	75.95238095	75.47619048	0.67343503

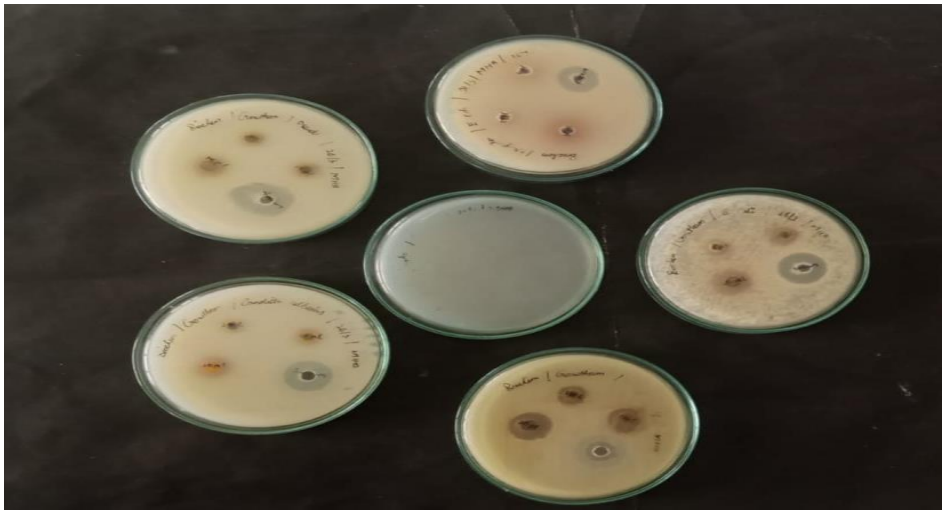
Average of antioxidant activities of set-1 and set-2 extracts



Antioxidant graph for the plant sample *Tephrosia purpurea*

Minimal inhibitory concentration:

To determine MIC values, all quantitative methods use Mueller–Hinton (MH) medium either in the form of agar (MHA) or broth (MHB), in some cases additionally supplemented with, for example, 5% lysed horse blood or other compounds depending on bacteria or antibiotic type (Table1). Only for anaerobic bacteria Brucella agar with Hemin (5 µg/mL), Vitamin K (1 µg/mL) and 5% lysed horse blood is used (Nagayama ., Yamaguchi K., etal., 2018)



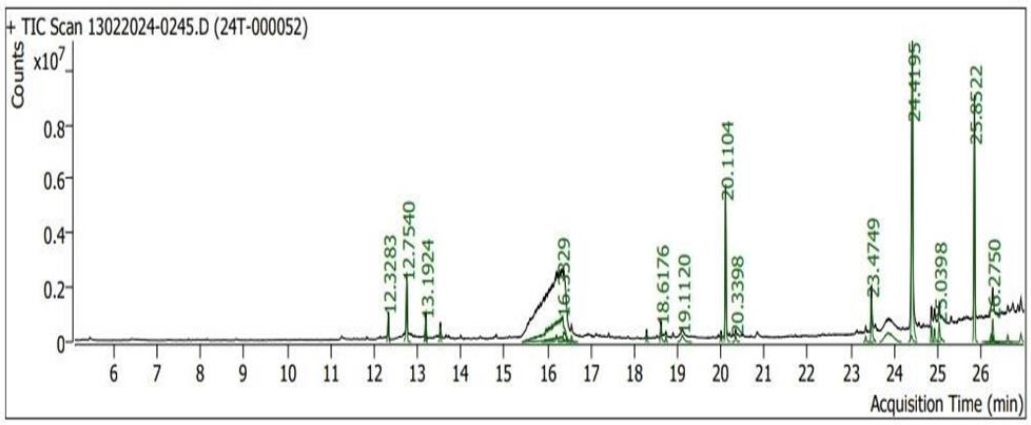
Minimal Inhibitory Concentration.

ORGANISM	NC	PC	20	30
E.coli	0.15	0.26	0.18	0.17
S.aureus	0.24	0.22	0.16	0.19
Pseudomonas sp	0.14	0.23	0.19	0.17
C.albicans	0.25	0.16	0.17	0.28
Aspergillus sp	0.14	0.25	0.24	0.18

MIC values

GCMS Analysis of the extract:

We used the peak area percentage to indicate the relative concentration of each compound. The main compounds identified based on the relative contents were Methyl octadeca-17-enoate(46.32%), Methyl hexadecanoate (Methyl palmitate) (24.22%), (-)-1,2- Didehydroaspidospermidine (11.39%), and Strictamine (3.44%). Most of the compounds extractedwith ethanol were unsaturated fatty acids. Methyl hexadecanoate plays a vital role in modulating anti-inflammatory responses in macrophages [Korbecki, J.; Bajdak-Rusinek, K 2019]. Additionally, it affects human semen quality. Further, 1,2-Didehydroaspidospermidine is a bioactive alkaloid extracted from many plants, and scientists have used it as a target for synthesis [Xu, H.; Huang, H., etal 2019].



Peak values of Bio active compound present in the plant sample

Compounds present in plant sample:

S.NO	COMPOUND NAME	FORMULA
1.	Cyclohexane, 1-ethenyl-1-methyl-2,4-bis(1- methylethenyl)	C15H24
2	Caryophyllene	C15H24
3.	Histamine, N-benzoyl-2-cyano	C13H12N4O
4	2-Methyl-N-(2-pyridinylmethyl)-1-propanamine	C10H16N2
5.	Germacrene D	C15H24
6.	cis-Muurola-4(15),5-diene	C15H24
7.	Methyl 2-ethoxyacetate	C5H10O3
8.	Acetic acid, rubidium salt	C2H3O2Rb
9.	Tetradecanoic acid	C2H3O2Rb
10.	Hexadecanoic acid, methyl ester	C17H34O2
11.	n-Hexadecanoic acid	C16H32O2
12.	Phthalic acid, butyl cyclobutyl ester	C16H20O4
13.	3-Heptanol, 3,5-dimethyl-	C9H20O
14.	Phytol	C20H40O

CONCLUSION:

Many plants are found useful for the treatment of common diseases. Efforts should be made creating medicinal plant gardens and generally encourage the development of medicinal plants as a way of enhancing adequate health care for the people considering the rising incidence of complications and death due to disease. Medicinal plant products still remain the primary source of supply of many important drugs in orthodox medicine today. In the present investigation evaluate the antimicrobial, antifungal and anti-oxidant activity of different extracts of *Tephrosia purpurea* which was collected from kanurpudur, Tamilnadu, India with help of local people around. Plants producing secondary metabolites have great prospective as antibacterial and antifungal source. The first step towards this objective is the in-vitro antimicrobial ans antioxidant activity. This work provides essential information in the different leaf extracts of *Tephrosia purpurea* serves as medicine against pathogens. That the crbinol and chloroform extract of the plant posses significant potential for the development of novel Antimicrobial therapies

REFERENCES:

1. Warrier PK, Nambiar VPK, Ramankutty C, Vasudevan RN. Indian medicinal plants: acompendium of 500 species. *Health and Fitness.* 1993.
2. Orwa C, Mutua A, Kindt R, Jamnadass R, Anthony S. a tree reference and selectionguide. *Agroforestree database* 2009.
3. Panda H. Medicinal plants cultivation and their uses. *Health and Fitness.* 2000]
4. Despande SS, Shah GB, Parmar NS. Antiulcer activity of *Tephrosia purpurea* in rats. *Indian J Pharmacol.*
5. Lodhi S, Pawar RS, Jain AP, Singhai AK. Wound healing potential of *Tephrosiapurpurea* (Linn.) Pers. in rats. *J Ethnopharmacol.* 2006
6. Arnold, M.D., Harry L. (1968). Poisonous Plants of Hawaii. Tokyo, Japan: Charles E. TuttleCo.. pp.

57–58. ISBN 0-8048-0474-5.
6. Gupta RK, Krishnamurti M, Parthasarathi J. Purpurin, a flavanone from *Tephrosia purpurea* seeds. *Phytochemistry.* 1980
7. Pelter A, Ward RS, Rao EV, Ranga E, Raju N. Substituted flavonoids and 30-substituted 7-oxygenated chalcones from *Tephrosia purpurea. J Chem Soc, Perkin Trans.* 1981
8. Sinha B, Natu AA, Nanavati DD. Prenylated flavonoids from *Tephrosia purpurea* seeds. *Phytochemistry.* 1982
9. Ventakata R, Raju E, Ranga N. Two flavonoids from *Tephrosia purpurea*. *Phytochemistry.* 1984
10. Chang LC, Chávez D, Song LL, Farnsworth NR, Pezzuto JM, Kinghorn AD. Absoluteconfiguration of novel bioactive flavonoids from *Tephrosia purpurea*. *Org Lett.* 2000]
11. Saxena VK, Choubey A. A neoflavonoid glycoside from *Tephrosia purpurea* stem. *Fitoterapia.* 1997
12. Hegazy ME, Abd el-Razek MH, Nagashima F, Asakawa Y, Paré PW. Rare prenylatedflavonoids from *Tephrosia purpurea*. *Phytochemistry.* 2009
13. Chopra, RN; Nayer, SL, and Chopra, IC (1956-92.), "Glossary of Indian Medicinal Plants",Council of Scientific and Industrial Research, New Delhi, India. Vol I, 241.
14. Heuzé V., Thiollet H., Tran G., Hassoun P., Lebas F., 2018. Ahuhu (Tephrosia purpurea). Feedipedia, a programme by INRA, CIRAD, AFZ and FAO. Last updated on January 25, 2018, 14:36
15. Buwa LV, Staden J V. Antibacterial and antifungal activity of traditional medicinal plants usedagainst venereal diseases in South Africa. *J Ethnopharmacol.* 2006
16. Dabur R, Ali M, Singh H, Gupta J, Sharma G L. A novel antifungal pyrrole derivative from *Datura metel* leaves. *Pharmazie.* 2004
17. Dabur R, Singh H, Chhillar A K, Ali M, Sharma G L. Antifungal potential of Indian medicinalplants. *Fitoterapia.* 2004
18. Dean D A, Burchard K W. Fungal infection in surgical patients. *Am J Surg.* 1996
19. Fromtling R A, Galgiani J N, Pfaller M A, Espinel-Ingroff A, Bartizal K F, Bartlett M S, BodyB A, Frey C, Hall G, Roberts G D. Multicenter evaluation of a broth macrodilution antifungal susceptibility test for yeasts. *Antimicrob Agents Chemother.* 1993
20.. Gonzalez C E, Venzon D, Lee S, Mueller B U, Pizzo P A, Walsh T J. Risk factors for fungemiain children infected with human immunodeficiency virus: a case-control study. *Clin Infect Dis.* 1996.
21. Graybill J R. Systemic fungal infections: diagnosis and treatment. I. Therapeutic agents. *Infectious Disease Clinics of North America.* 1988
22. Narang G D, Nayar S, Mcndiratta D K. Antibacterial activity of some indigenous drugs. *J VetAnimal husb Res.* 1962
23. Ng P C. Systemic fungal infections in neonates. *Arch Dis of Childhood.* 1994
24. Sieradzki K, Wu SW, Tomasz A. Inactivation of the methicillin resistance gene mecA in vancomycin-resistant *Staphylococcus aureus*. *Micro Drug Resist.* 1999.
25. Korbecki, J.; Bajdak-Rusinek, K. The effect of palmitic acid on inflammatory response in macrophages: An overview of molecular mechanisms. *Inflamm. Res.* **2019**,
26. Esmaeili, V.; Shahverdi, A.H.; Moghadasian, M.H.; Alizadeh, A.R. Dietary fatty acids affect semen quality: A review. *Andrology* **2015**.

27. Xu, H.; Huang, H.; Zhao, C.; Song, C.; Chang, J. Total Synthesis of (+)-Aspidospermidine. *Org.Lett.*

2019.

28. Skariyachan, S.; Manjunath, M.; Bachappanavar, N. Screening of potential lead molecules against prioritised targets of multi-drug-resistant-*Acinetobacter baumannii*—Insights from molecular docking, molecular dynamic simulations and in vitro assays. *J. Biomol. Struct. Dyn.* **2019**.
29. Goff, S.A.; Klee, H.J. Plant volatile compounds: Sensory cues for health and nutritional value? *Science* **2006**, *311*, 815–819.
30. Bukhari, N.A.; Al-Otaibi, R.A.; Ibhrahim, M.M. Phytochemical and taxonomic evaluation of *Rhazya stricta* in Saudi Arabia. *Saudi J. Biol. Sci.* **2017**.