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PHYTOCHEMICAL AND ANTIMICROBIAL EVALUATION OF A HEMIPARASITIC MEDICINAL PLANTS of *Dendrophthoe falcata* (LF) PARASITIC ON *Mangifera indica* HOST TREES.

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ABSTRACT

The preminary phytochemical screening in different solvent extracts of *Dendrophthoe falcata* leaf samples collected from *Mangifera indica* host tree. Exhibited variations in the presence of phytocompounds depends upon the polarity of solvents and solubility level of phytocompounds. The results of biochemical's content analysis in the *Dendrophthoe falcata* plant samples indicate that the leaf samples possess more amounts of Alkaloids, Tannins, fixed oils and fats were tested. The aqueous extract of *Dendrophthoe falcata* plant samples shows less antimicrobial activity in general as compared to control moderate antibacterial activity was observed against *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* bacteria were tested.

Keywords: Mistletoes, hemiparasitic plant *Dendrophthoe falcata* preliminary phytochemical, antimicrobial activity.

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INTRODUCTION

Dendrophthoe falcata (L.F) Ettingsh parasitic plant according to shah (1978). *Dendrophthoe falcata* a common parasitic host plants throughout Tamil University campus in Thanjavur. Tamilnadu. It is very common and abundant stem parasitic on *Mangifera indica* L.More and Inamder (1975). Reported it as a partial leaf parasite on *Mangifera indica* L.Patel *et al.*, 1991). *Dendrophthoe falcata* loranthaceae is a hemiparasitic plant south india (Anonymous 1997). The plant has been investigated phytochemically for carotenoids, alkaloids, triterpenoids and saponins satish *et al.*,(1998) phytochemically methods Harbone. J.B (1973). *Dendrophthoe falcata* is a hemiparasite its phytoconstituents bioactive principles the range bioactivities and other health care benefits are varied and influenced by its host plants antimicrobial activity (Taylor *el al.*,1996) therefore the present study was carried out to evaluate the qualitative and quantitative phytochemicals and antimicrobial potential of *Dendrophthoe falcata* (L.y) Ettingsh collected from *Mangifera indica* host tree.

MATERIALS AND METHODS

Plant material the hemiparasitic mistletoe plant *Dendrophthoe falcata* (L.f) Ettingsh was collected from the host tree *Mangifera indica* Tamil University campus Thanjavur district. The voucher specimen is preserved in the department of ancient science Tamil university Thanjavur.

Prepatation of dry powder samples

Fresh leaf samples of *Dendrophthoe falcata* were washed to remove the dust and dried separately for about two weeks at room temperature (30°C ± 2°C) to get a constant weight. The dried plant materials leaf were grind to powder separately by mechanical device stored and used in this work throughout the study period.

Preparation of solvent extract

The dry powder of *Dendrophthoe falcata* leaf samples were extracted separately with different solvents (pet.ether Benzene, Chloroform, alcohol, water). The extracts were evaporated under vaccum extractive value (% w/w) of plant materials calculated separately.

Fluroescence Analysis

Fluroescent characteristics of the plant powder as such and after treating them with chemical reagents were observed in day light as well as under UV radiation Fluroescent analysis of plant powders were carried out according to the methods of (Chase and Pratt 1949) and (Kokoshi *et al.*, 1958). Behaviour of powdered plant materials with different chemical reagents was carried out as described by (Kay 1938 and Johonson 1940)

Qualitative Phytochemical Screening

The different qualitative chemical tests were done using the procedure of (Kokats *et al.*, 1995). The following tests were performed on extracts to detect various phytoconstituents present in them.

Antimicrobial Activity

Media Preparation

Bacterial media (Nutrient Agar Medium) 120ml of nutrient agar media (Hi-Media) mixed with distilled water and then sterilized in autoclave for 15 minitues at 15LB pressure. The sterilized media were poured into petri dishes. The solidified plates were pored with 5 mm corkpore. the plates with well were used for antibacterial studies.

Bacterial Stains

The bacterial pathogenic stains were obtained from the microbial type culture collection (MTCC) Institute of Veterinary University Training and Research Centre Thanjavur. microbial bacterial stains used were *Escherichia coli*, *Staphylococcus aureus* ,*Pseudomonas aeruginosa*. for *in vitro* studies.

Antibacterial activity of the leaf Extracts

The aqueous extract of leaves of *Dendrophthoe falcata* parastic on *Mangifera indica* were used for the antibacterial study. The aqueous extracts 20% and 40% were tested again different bacterial pathogens such as *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*. for their antimicrobial activity. It was demonstrated by Disc diffusion assay

Disc diffusion method

Antibacterial activity of plant extract was tested using Disc diffusion method (Bane *et al.*, 1996). The prepared culture plates were inoculated with different stains of bacterial using Disc diffusion method wells were made on the Agar surface with 5mm borer. The zone of inhibition was calculated by measuring the diameter of the inhibition zone around the well (1n mm) including the well diameter. The reading were taken in three different fixed directions in all three replicates and the average values were calculated.

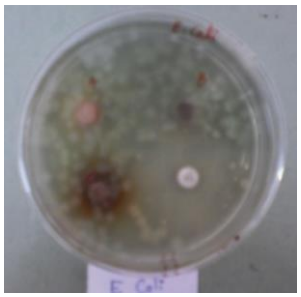

Fig.1: ***Escherichia coli***

Fig.2: ***S. aureus***

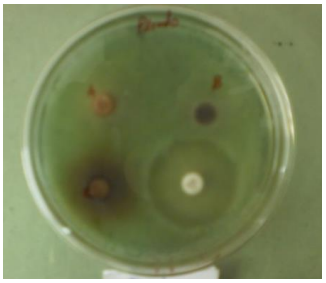

Fig.3: ***Pseudomonas aeruginosa***

Fig.4: ***Dendrophthoe falcata*** **parasitic on** ***M. indica***

Table.1: Qualitative phytochemical tests

Compound tested	Reagent used	Pet. Ether	Benzene	Chloroform	Alcohol	Water
Carbohydrates	Fehlings	-	-	-	+	-
	Molishs	-	-	-	+	+
Alkaloids	Dragendraffs	-	-	+	+	+
	Wagners	-	-	+	+	+
	Hagners	-	-	+	+	-
	Mayers	-	-	+	+	-
Tannins and Phenols	10% Lead acetate	-	-	-	+	+
Flavonoids	NaOH + HCL	-	-	+	+	-
Gum and Mucilage	Alcoholic precipitation	-	-	-	-	+
Fixedoils and Fats	Spot test	+	-	+	+	-
Saponins	Foam test	-	-	-	+	-
Phytosterol	LB test	-	+	-	-	-

Antimicrobial Activity

Antimicrobial activity of *Dendrophthoe falcata* leaf samples were reported in the table-2. Antimicrobial activity of *Dendrophthoe falcata* leaf samples collected from *Mangifera indica* concentrations did not show antibacterial activity aginst *Escherichia coli*, *Staphylococcus aureus* ,*Pseudomonas aeruginosa*

Table.2: Antimicrobial activity of *Dendrophthoe falcata*

Dendrophthoe falcata	Zone of inhibition in (mm)		
Aqueous extract	Escherichia coli	*Staphylococcus aureus*	*Pseudomonas aeruginosa*
Leaf extract	-	-	-

Antibacterial activity

The results of antibacterial activity of *Dendrophthoe falcata* leaf samples were recorded in the table-2.The bacterial such as *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas aeruginosa* were used for the antibacterial activity study.

RESULTS

Qualitative phtochemical tests Qualitative phytochemical screening of leaf extracts of Dendrophthoe falcata parasitic on Mangifera indica Table-1 showed Presence of similar phytochemical constituents like carbohydrates, alkaloids, tannins, phenols gums and mucilage, fixed oil and fat, saponims and phytosterols However leaf extract from Dendrophthoe falcata growing on *Mangifera indica* presence of phytosterol in Benzene given solvent extracts.

50%water extracts of *Dendrophthoe falcata* parasitic *Mangifera indica* at 5mg, 10mg and 20mg

DISCUSSION

Preliminary phytochemically screening of plant is very useful for the determination of the active constituents in different solvent extracts Dashora et al revealed the presence of carbohydrates, phytosterols flavonoids in *Dendrophthoe falcata*. Pattanayak et al reported that the chloroform extract of *Dendrophthoe falcata* had showed positive result for flavonoids, while methanol extract had revealed the presence of Tannin and flavonoids. Most of the principles are found in alcoholic and aqueous extracts. The result of the present study also are in agreement with the results of previous reports (Table -1).

According to reports the growth of parasitic plant *Dendrophthoe falcata* on host plant *Mangifera indica* exerts disease curing properties. The evidence of the presence of antimicrobial agents in plants resistance of such plants to pest attack. Several workers have been carried out in the past to verify the folkloric use of the African mistletoe in the management of microbial infection. Earlier studies by the authors on the crude powder and some slovent fractions have established some significant antibacterial activity properties.

Antibacterial activity observed in *Dendrophthoe falcata* might have the result of a number of phyto constituents present in the plants reported by UKWUEZE *et al.*, That is the phtytochemical screening results in this study also followed the trend is above.

Many author have demonstrated the antibacterial activity of these phtyochemicals. Also some researchers devoted to substances extracted from plants have established that such metabolites like terpenoids, alkaloids, etc. Significantly inhibit growth by bacteria *Escherichia coli*, *Staphylococcus aureus* ,*Pseudomonas aeruginosa*. did not show.

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