World Journal of Science and Research. 2(2): 20-23 (2017)

ISSN: 2455 2208

Available online at http://www.harmanpublications.com

World Journal of Science and Research

Research Article Ancient Science

PHYTOCHEMICAL AND ANTIMICRIBIAL EVALUTION OF A HEMIPARASITIC MISTIETOE PLANT *Dendrophthoe falcata* (L.F) ETTINGSH PARASITIC ON *Albizzia procera* – HOST TREES.

Kathayi. A,* Nagarajan. N*

#Research Scholar, Department of Ancient Science, Tamil University Thanjavur-10, Tamil Nadu, India
*Department of Ancient Science, Tamil University Thanjavur-10, Tamil Nadu, India, Tamil Nadu, India

ABSTRACT

The preliminary phytochemical screening solvent extracts of *Dendrophthoe falcata* leaf sample collected from *Albizzia procera* host tree exhibited . Variations in the presence of phytocompounds depends upon the polaity of solvents and solubility level of phytocompounds. The results of Biochemicals content analysis in the *Dendrophthoe falcata* plants. Sample indicate the leaf sample possess of the aqueous extracts of *Dendrophthoe falcata* plant samples. Show more antibacterial activity in general composed compared to control moderate antibacterial activity was observed against Escherichia coli.

***Citation*:** Kathayi A and Nagarajan.N. (2017) Phytochemical and antimicribial evalution of a hemiparasitic mistietoe plant *Dendrophthoe falcata* (L.F) ettingsh parasitic on *Albizzia procera* – host trees. World Journal of Science and Research. 2(2): 20-23 (2017)

Article Info:

Received on 05th April 2017
Accepted on 12th August. 2016
Online August 2017

Keywords:
Staphylococcus aureus, Pseudomonas auruginosia, Escherichia coli.

****Corresponding author***
Dr. N. Nagarajan, Associate Professor Department of Ancient Science, Tamil University Thanjavur-10 Tamil Nadu, India.

1. INTRODUCTION

Dendrophthoe falcata parasitic plants family loranthaceae (Narayanasamy *et al*., 1979). *Dendrophthoe falcata* flowering parasitic plant (Ravindranth *et al*.. 1959). The leaf extracts by comparing its effects organism with that as a standard preparation. Preliminary phytochemical investigation (Balaram *et al.,* 1981). *Dendrophthoe falcata* phytochemical studies (Manthri *et al*.. 2011). *Dendrophthoe falcata* some new host plants (Sampathkumar *et al.,* 1981). *Dendrophthoe falcata* new host plants (Chavan *et al*., 1963). Diesel (or) powerine oil (30-50ppm), is sprayed on host plants affected by *Dendrophthoe falcata* to prevent its growth further (Ragupathy and mahadevan *et al.,* 1997). Singh *et al.,* 1954 has observed the cases of autoparasitism in *Dendrophthoe falcata* resistance to these drugs by microorganisms has increased. In general bacterial have the genetic ability to transmit and acquire resistance to drugs which are utilized as therapeutic agents such a fact is cause for concern, because of the number of patients in hospitals who have suppressed immunity and due to new bacterial stains, which are multi-resistant. Consequently new infect ions can occur in hospitals resulting in high mortality. This fact has also have been verified in other clinics around all over world.

The problem of microbial resistance is growing and the outlook for the use of antimicrobial drugs in the future is still uncertain. Therefore actions must be taken to reduce this problem. For example to control the use of antibiotic develop research to better understand the genetic mechanisms of resistance and to continue studies to develop new drugs. Either synthetic or natural the ultimate goal is to offer appropriate and efficient antimicrobial drugs to the patient for a long period of time plants and have been a valuable source of natural products for maintaining human health. According to world health organization medicinal plants. About 80% of individuals from developed countries use traditional medicine, which has compounds derived from medicinal plants. Therefore such plants should be investigated to better understanding their properties, safety and efficiency. Even though some literature on the medicinal properties of loranthaceae plants is found.

MATERIALS AND METHODS:

Plant Materilas:

The leaves of *Dendrophthoe falcata* parasitic on *Albizzia procera* (Fig 1) were collected from Tamil University Campus, Thanjavur District, Thanjavur. The plant specimen was authenticated from the voucher specimen is preserved in the Department of Ancient Science Thanjavur District, Tamil Nadu.

Fig 1 *Dendrophthoe falcata* parasitic on *Albizzia procera*

Preparation 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 shade dry (30º C ± 0 º C) to get a constant weight. The dried plant materials leaf were ground to powder separately by mechanical device stored and used in this work throughout the study period.

Preparation of solvent extract for preliminary phytochemical screening:

The dry powder of *Dendrophthoe falcata* leaf samples were extracted separately with different solvents pet. ether, Benzene, Chloroform, alcohol and water at 20 %(W/V) level in a soxhlet apparatus. These extracts were concentrated and used for qualitative preliminary phytochemical analysis.

Phytochemical analysis:

The powdered leaf *Dendrophthoe falcata* was subjected to qualitative and quantitative phytochemical analysis.

Qualitative phytochemical analysis:

Preliminary phytochemical screening the different solvent extracts of *Dendrophthoe falcata* dry plant materials were subjected to preliminary phytochemical qualitative screening following the standard protocols to record the presence or absence of various primary and secondary metabolites such as alkaloids, flavoniods, carbohydrates, tannins and phenols, Gum and mucilage, Fixed oil and phytosterols were detected.

Antibacterial activity:

The required amount of Nutrient agar medium [Himedia] is prepared as per manufacture instruction. The following pathogens were collected from local hospitals and characterized based on bergery's manual of systematic bacterial classification. Pathogen Identified as *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas auruginosa* were used for the antibacterial activities. A sterile cotton swab was dipped into turbid culture suspension.

Antibacterial activity:

The required amount of Nutrient Agar medium [Hi –media] is prepared as manufacture instruction. The following pathogens were collected from local hospitals and characterized based on bergey's manual of systematic bacterial classification. The pathogens Identified as *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas auruginosa* were used for the antibacterial activities. Sterile cotton swab was dipped into the turbid culture suspension. The dried surface of Muller Hinton agar plate was inoculated by streaking two more times ratting. Ciprofloxacin was used as the positive control for all the pathogens. Added 2µl of crude *Dendrophthoe falcata* extract to the sterile disc and evaporate the solvent. After drying disc were placed on the medium and the plates were incubated at 35^0C for 24h to permit good diffusion and the transferred to as incubated at 37^0C for 2h for bacterial cultures. The antibacterial activity was recovered by measuring the width of the clear inhibition zone around the disc.

RESULTS

Phytochemical studies:

Qualitative Preliminary Phytochemical Screening

The results of the preliminary phytochemical screening of various solvent , [Pet-ether, Benzene, Chloroform, alcohol and water] extracts of *Dendrophthoe falcata* leaf samples was recovered and presented in the Tables 1.The results revealed that the presence of alkaloids, carbohydrates , Tannins and Phenols, Flavonoids, Gum and mucilage, Fixed oil and Fats, Saponins and phytosterols in the leaf sample extract were tested . However, there are variations in the presence and absence of phytochemical compounds in various

solvent extracts of *Dendrophthoe falcata* leaf samples.

The leaf samples of *Dendrophthoe falcata* possesses most of the compounds analyzed. The leaf extract shows presence of Alkaloids and phytosterols, less amount of fixed oils and Fats, Tannins and phenols, extract shows presence of Alkaloids and phytosterols, less amount of fixed oils and Fats, Tannins and phenols, very less amount of saponins and Flavonoids especially. The aqueous extract presence of flavonoide, Tannins and Phenols. Alkaloids and carbohydrates. The preliminary phytochemical analysis of *Dendrophthoe falcata* leaf sample reveals the presence of Alkaloids and Phyto-sterole.

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	-	-	-	-	+
Fixed oils and Fats	Spot test	+	-	+	-	-
Saponins	Foam test	-	-	-	+	-
Phytosterol	LB test	+	+	+	+	-

Presence (+) Absence (-)

Table.2: Antimicrobial activity of *Dendrophthoe falcate*

Dendrophthe falcata	Zone of inhibition in (mm)		
	Escherichia coli	*Staphylococcus aureus*	*Psedomonas auruginosa*
Aqueous Leaf extract	10.00	11.00	10.5

Antibacterial Activity

The Results of Antibacterial activity of *D. falcata* Leaves samples were recorded in the table 2. The Bacteria such as *Escherichia coli*, *Staphylococcus aureus* and *pseudomonas auruginosa*. Were used for the antibacterial activity study. Antibacterial activity of *D. falcata* was determined by nutrient agar well DISC diffusion method. When compared to the Ciprofloxacin control however all the test materials showed the higher values.

Escherichia coli

Staphylococcus aureus

Psedomonas auruginosa

Fig 2 Antimicrobial activity of *Dendrophthoe falcate*

DISCUSSION:

Preliminary photochemical screening of plant is very useful for the determination of the active constituents. Dashora et al revealed the presence of Alkaloids phytosterols. Reported that the aqueous extract of *D. falcata* had showed positive are found in the chloroform and aqueous extracts. The result of the present study also in agreement with the results of previous reports [Table -1] The Biochemical content determined in the leaf samples *Dendrophthoe falcata* reveals that the *D. falcata* leaf sample has more amounts of alkaloids and phytosterols.

According to reports the growth of parasitic plant exerts disease curing properties. The evidence of the presence of antimicrobial agents in plants. Several workers have been carried out in the past verify the folkloric use of the African mistletoe in the management of microbial infection. Earlier studies of the authors on the crude powder and some of its solvent fraction have established some significant antibacterial properties leaf extracts of *Dendrophthoe falcata* against *Escherichia coli. Staphylococcus aureus, Pseudomonas auruginosa.*

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

The higher antibacterial activity might be the presence of high concentration of phytoconstituents Alkaloids, Phytosterols in the leaf extract of *Dendrophthoe falcata.* The higher antibacterial activity of leaf samples aqueous extracts.

Many authors have demonstrated the antibacterial activity of these phytochemicals. Also some Researchers devoted to substances extracted from plants have established that such metabolites like alkaloids, phytosterols etc. Significantly inhibit the growth of Bacteria [*Escherichia coli, Staphylococcus aureus* and *Pseudomonas auruginosa*]. Indeed metabolites like Alkaloids and phytosterols are known to be synthesized in response to microbial infection and thus have been found invitro to be effective antimicrobial substances a wide range of microorganisms

Antimicrobial activity in *Dendrophthoe* falcata. The antimicrobial activity aqueous extracts to inhibit Escherichia coli, Staphylococcus aureus and Pseudomonas auruginosa etc.

The antibacterial activity of *Dendrophthoe falcata* as recovered in this aqueous extracts of antibacterial activity. The all solvent the leaf extracts of *Dendrophthoe falcata* highly presence of alkaloids and phytosterols.

REFERENCES

1. Narayanasamy, C.and R.Sampathkumar (1979). Host parasite relationships in *Dendrophthoe falcata* (c.f). Ettingsh Loranthus longi.
2. Ravindranath.V and V.L.N. Rao [1959]. Additional hosts for flowering parasites *Dendrophthoe falcata* (L.f) Ettingsh [loranthus longiflorus Desr] Journal of Indian Botanical Society 38.204-212.
3. Sampathkumar.R, Selvaraj, somenew host for *Dendrophthoe falcata* [linn 7]. Ettingsh loranthus longiflorus Desr J.Bombay Nat. Hist Soc. 1981:78.200.
4. Chavan A.R and G.M.Oza [1963]. New host plants for *Dendrophthoe falcata* (C.f) Ettingsh at pavagadh. Journal of Bombay natural History Society 60:472-473.
5. Ragupathy. and A.mahadevan (1991). Additional host species for loranthus and their localities in Thanjavur District Tamilnadu. Journal of Bombay Natural History Society 89:149-150.
6. Singh B 1954. Studies in the family loarnthaceae. list of new hosts of *Dendrophthoe falcata* (C.f) Ettingsh its relation with hosts, the anatomy of its seedling and mature haustorium. Agrauni J.Res 301-3015.
7. Balaram R.Raj Kps, panchal DI.preliminary phytochemical investigation of *Dendrophthoe falcata* linn Indian drugs 1981:2.

Source of support: Nil;
Conflict of interest: None declared