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SYSTEMATIC REVIEW ON PHYTOCHEMICAL ANALYSIS AND ANTIOXIDANT ACTIVITY OF *TAMILNADIA ULIGINOSA* (RETZ.) TIRVENG. &SASTRE (RUBIACEAE)

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ABSTRACT:
This review aimed to summarize the available data on the phytochemical analysis and antioxidant activity of *Tamilnadia uliginosa* (Retz.) Tirveng. &Sastre (Family: Rubiaceae) based on available database reports. *Tamilnadia uliginosa* is known as Divine Jasmine, belonging to Rubiaceae. *Tamilnadia uliginosa* possess the high bio prospecting potential and it is a renowned medicinal plant used to treat large number of human ailments. It possesses various 15 phenolic compounds along with phytoconstituents like carbohydrates, alkaloid, glycosides, steroids, tannins and saponin. It contains different elements like Mg, K, Na, Fe, Mn, Ca, Pb, Cu in fresh leaves and fruits. *Tamilnadia uliginosa* leaves shows strong antioxidant activity in ethanol leaf extract with DPPH activity. Present review shows that detailed phytochemical investigation and bio-evaluation studies of *Tamilnadia uliginosa* are necessary to explore its high potential. Antioxidant studies are scantier and only carried out from leaves. Therefore, there is need to carried out more phytochemical analysis and its antioxidants activities of different plants parts like fruits, roots, seeds and stem etc.

Keywords:- *Tamilnadia Uliginosa*, Rubiaceae , Phytochemical, Antioxidant, Review.

INTRODUCTION :

The World Health Organization (WHO) estimates that more than 80% of the world's population, primarily in impoverished nations, relies on traditional plant-based medicines for their main healthcare requirements. In traditional systems of medicine, medicinal plants are the most abundant biosource of pharmaceuticals (Adnan *et. al.*, 2014). A long time ago, people realised that particular food elements have special qualities for preventing or curing certain diseases and promoting overall health (Vijayakumar *et. al.*, 2009). The crucial step in the characterisation of a medicinal plant is scientific validation, which includes the pharmacognostic, phytochemical, and nutritional characterization (ul Hassan *et. al.*, 2014).

Tamilnadia uliginosa (Retz.) Tirveng and Sastre is known as Divine Jasmine, belonging to Rubiaceae family native of India, Bangladesh, Sri Lanka, and Thailand. It is one of the renowned medicinal plants used to treat large number of human ailments mentioned in Ayurveda, Unani and Siddha (Deepthy Mol *et.al.*,2016). *Tamilnadia uliginosa* is a small shrub, which grows up to 1-2 m and has simple, obovate, hairy, wrinkled, glossy leaves. *Tamilnadia uliginosa* is known as *"Fetra"* , *"Phendra"* in Vidarbha region of Maharashtra. Its fruits are used as wild edible fruits like vegetable and forthe preparation of pickles (Chothe *et.al.*,2014; Deshmukh,2017).

According to Plants of the World Online (POWO, 2022) *Tamilnadia uliginosa* also known by many synonyms like *Catunaregam uliginosa* (Retz.)

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Sivar. ,*Gardenia uliginosa* Retz., *Posoqueria uliginosa* (Retz.) Roxb., *Randia uliginosa* (Retz.) Poir., *Solena uliginosa* (Retz.) D. Dietr., *Xeromphis uliginosa* (Retz.) Maheshw., *Gardenia pomifera* Wall. It is widely in our Traditional System of Medicine for curing various diseases like eye diseases, laxation and ulcers; leaves used in muscular pain and kidney problems, also applied for boils and carbuncles. Infusion of leaves also used against cold bronchitis and rheumatism. (Srinivasulu & Das, 2008).

METHODOLOGY:

Literature search was performed using the both offline and online databases like Scopus, Google Scholar, Springer Link, BioMed Central, ScienceDirect, ResearchGate, Web of Science, PubMed and Elsevier etc. scientific databases were chosen based on the topic covered (i.e., Phytochemical analysis, phytochemitry and antioxidant activity of *Tamilnadia uliginosa* (Retz.), Tirveng and Sastre). Common keyword used for to search published materials as "*Tamilnadia uliginosa* Linn.", which was then paired with "Phytochemical analysis" "phytochemitry" "antioxidant activity". Other offline literature sources included papers published in Related Books, National & International Conference papers, Abstract books, published Proceedings, National & International Journals & reports published from Regional, International and National organizations.

RESULT:

Roots of *Tamildadia uliginosa* used in diarrhoea, aphrodisiac diuretic, biliousness. Fruits used as astringent and also used as vegetable (Sudhakar *et. al.*, 2012). Fruit pulp is applied externally for curing boils. The raw fruit extract is used against dysentery and diarrhoea. The fruits show insecticidal properties and are also rich source of carbohydrate. It cures wounds, tumour and skin diseases (Nadkarni *et. al.*, 1976); abscess, ulcer, inflammation (Neerugatti *et. al.*, 2014).

Jain, (1965) reported saponins of oleanolic acid and mannitol from the unripe fruits of *Tamildadia uliginosa.* Alkaloids, coumarin and glycosides are reported in methanolic extract of fruits (Deepthy and Radhamony, 2012). Preliminary phytochemical screening shows positive results like, for Alkaloids Dragendroff' test in Aqueous & Ethanolic extract ;Carbohydrates Molisch's test in Aqueous & Ethanolic extract; Glycosides Brontrager's test in Aqueous extract; Fixed oil and fats Spot testin Aqueous & Ethanolic extract; Protein and amino acid Ninhydrin test inPetroleum ether extract and Biuret testin Aqueous & Ethanolic extract; Flavanoids with NaOH in Aqueous &Petroleum ether extract,with H_2SO_4 in Ethanolic extract; Steroids and triterpenoids Libermann's Burchard test in Ethanolic extract & Salkowski's test in Aqueous extract. Test for Tannins,Waxes Mucilage and gum shows negative results (Sandhyarani *et. al.*,2014).

Different crude extracts of *Randia uliginosa* Retz. have been shown to possess phytoconstituents including carbohydrates, alkaloid, glycosides, steroids, tannins and saponin (Hossain *et. al.* 2016).

Deepthymol & Dhar (2018) reported 15 phenolic compounds and it also shows presence of elements like Mg, K, Na, Fe, Mn, Ca, Pb, Cu present in fresh leaves and fruits of *Tamilnadia uliginosa. Tamilnadia uliginosa* fruits shows moisture content (86.6%), Protein (0.58mg), Fat (0.24mg), Reducing Sugar(6.6mg), Non Reducing Sugar(2.19mg), Total Sugar(8.8mg),Fibre (2.88mg), Mineral matter (0.81mg), Vitamin C (62.19mg), Iron (1mg), Sodium (5.8mg), Potassium (170mg), Energy (39.98KJ) (Nazarudeen,2010).

The unripe fruits of *Tamildadia uliginosa* (Retz.) Tirveng and Sastres contains saponin of Oleanolic acid and Mannitol (Jain, 1965). The

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preliminary phytochemical investigation of fruits showed occurrence of Alkaloids, coumarin and glycosides in Methanolic extract (Deepthy and Radhamony, 2012). Kalpana and Prakash (2018) reported anti-inflammatory activity in ethanolic leaf extracts of *Tamilnadia uliginosa*.

Hossain *et. al.*, (2014) results showed that the *Randia uliginosa* chloroform extracts of leaves have the significant amount of antioxidants. Leaf extracts of *Randia uliginosa* have poor cytotoxic property compared to the standard. Kalpana and Prakash (2017) showed strong antioxidant activity in ethanol leaf extract of *Tamilnadia uliginosa* assessed by DPPH activity. It also shows highest radical scavenging activity of 77.6±4.5% at the concentration of 75 µl/ml in ethanol extract of *Tamilnadia uliginosa* leaves.

CONCLUSION:

Tamildadia uliginosa (Retz.) Tirveng and Sastres possesses various 15 phenolic compounds along with various phyto constituents like carbohydrates, alkaloid, glycosides, steroids, tannins and saponin. It contains different elements like Mg, K, Na, Fe, Mn, Ca, Pb, Cu in fresh leaves and fruits. *Tamilnadia uliginosa* leaves shows strong antioxidant activity in ethanol leaf extract with DPPH activity. Present review shows that detailed phytochemical investigation, antioxidant activity and bio-evaluation studies of *Tamilnadia uliginosa* are necessary to explore its high potential. Antioxidant studies are scantier and only carried out from leaves. Therefore, there is need to carried out more phytochemical analysis and its antioxidants activities of different plants parts like fruits, roots, seeds and stem etc.

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