

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 4, June 2022

# Phytochemical and Antifungal properties of *Tinospora cordifolia* (Wild) Hook F. Thompson Against Fruit Rot Pathogens

Dr. Sawant S. G. Department of Botany K. K. M. College, Manwat, Maharashtra, India sarika.sawant6@gmail.com

Abstract: Many studies reveal that the plants are reservoirs of 'active antimicrobial compounds'. The antimicrobial activity of plants is due to the presence of different bioactive compounds of various types such as Flavanoids, triterpenoids and some essential oils like Thymol and natural phenolic compounds. Many investigations shows the usefulness of all these compounds in human welfare particularly to counteract many kinds of human disorders. This study throws light on the phytochemical and antifungal properties of T.cordifolia. In this study preliminary qualitative analysis of leaf and Stem extract of T.cordifolia. This is done by using three types of Solvents as Water, Ethanol, Methanol. Data indicates the presence of flavonoids, alkaloids, phenolic compounds, glycosides phytosterols and tannins. Most of the phytochemical compounds were found in methanolic and water solvents as compared to ethanol. The presence of these secondary metabolites and their potential suggests their future usefulness to control human as well as plant's antimicrobial attacks.

Keywords: Active antimicrobial compound, phytochemicals, Tinospora cordifolia, solvent extracts

## REFERENCES

- [1]. Indian medicinal plant, P.C.Trivedi, 2009. Avishkar Publishers Distributors.pp. 1-2
- [2]. Sill, W.H.(1985). Plant protection. Kalyani Publishers, New Delhi, India.
- [3]. Lee, S.H., Chang, K.S., Su M.S., Huang Y.S. and Jang H.D. (2007). Effects of some Chinese medicinal plant extracts on different fungi. Food Control. 18: 1547-1554.
- [4]. Verstagui, A.; Verde, J.;Garcia, S.; Heredia, N.; Orandy, A and Rivas, C.(2008).Species of Agave with antimicrobial activity against selected pathogenic bacteria and fungi. World Journal of Microbiology and Biotechnology 24:1249-1252.
- [5]. Santas, J.; Almanjano, M.P.; and Carbo, R.(2010). Antimicrobial and antioxidant activity of crude Onion(Allium cepa L.) extracts. International Journal of Food Science and Technology 45, 403-409.
- [6]. Lattanzio, V.(2003). Bioactive polyphenols: Their role in quality and storability of fruits and vegetables. Journal of Applied Botany;77,128-146.
- [7]. Schena, L., Nigro, F.and Ippolito,A.(2008). Natural antimicrobial to improve storage and shelf life of fresh fruit, vegetables and cut flowers. In: Microbial biotechnology in Horticulture, vol.2. Science Publishers, Enfield, NH, Ray, R.C. and Ward,O.P.(Eds),USA,pp.259-303.
- [8]. Amadioha, A.C. and Obi, V.I.(1999). Control of Anthracnose disease of Cowpea by *Cymbapogon cunitus* and *Ocimum gratissium* Acto phytopathology and Entomology 85:89.
- [9]. Amadioha, A.C.(2000).Fungitoxic effects of some leaf extracts against Rhizopus oryzae causing tuber rot of Potato.Archieves of phytopathol, Planzo 34:19
- [10]. Okigbo, R.N.(2009). Variation in phytochemical properties of selected fungicidal aqueous extracts of some plant leaves in Kogi State, Nigeria. American-Eurasian Journal of Sustainable agriculture 3(3): 407-409.
- [11]. Zhang,H. and X.Zhang(2005). Biological control of postharvest blue mold of oranges by Cryptocroccus laurentii(Kufferath) Skinner. Biocontrol 50: 331-342.
- [12]. Meshram A., Bhagyant S.S., Gautam S., Shrivastava N. Potential role of *Tinospora cordifolia* in pharmaceutical sciences.2013;2(6):4615-4625.

Copyright to IJARSCT www.ijarsct.co.in



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

#### Volume 2, Issue 4, June 2022

- [13]. Singh S.S., Pandey S.C., Srivastava S., Gupta V.S, Patro B., Ghosh AC. Chemistry and medicinal properties of *Tinospora cordifolia* (Guduchi). Indian Journal of Pharmacology.2003; 35:83-91.
- [14]. Sinha K, Mishra N. P., Singh J., Khanuja SPS. Tinospora cordifolia(Guduchi), a reservoir plant for theraupetic applications: A review. Indian Journal of Traditional knowledge. 2004;3:257-70.
- [15]. Soni H.P., Nayak G, Patel S.S., Mishra K, Singh R.P. Pharmacognostic studies of the leaves of *Tinospora cordifolia*.IJPI Journal of Pharmacognosy and Herbal formulations.2011; 1:1-6.
- [16]. Promilla, Sushila Singh and Parvesh Devi 2017.Pharmacological Potential of *Tinospora cordifolia* (Wild). Miers ex.hook and Thomas(Giloy): A review. Z.Journal of Pharmacognosy and Phytochemistry.6(6): 1644-1647.
- [17]. Jyoti Rani, Lalita Singh, Hoshiyar Singh, Manish Kapoor and Gangadeep Singh. Preliminary phytochemical analysis of different solvent extracts from Leaf and stem of *Tinospora cordifolia*. International Journal of Phytotherapy.2015.Vol.5 (3) 124-128.
- [18]. M.F.A. E.I-Matti, S.A.Mahgoub, S.M. Labib, A.M.A.Al.Gaby, and M.F. Ramadan Phenolic extracts of Clove(*Syzigium aromaticum*) with novel antioxidant and antibacterial activities. European Journal of Integrative medicine, vol.8 no.4 pp.494-504,2016.
- [19]. A.M.A. Assiri, K.Elbanna, A. AI-Thubiani, and M.F.Ramadan, Cold pressed Oregano(*Origanum vulgare*) oil: a rich source of bioactive lipids with novel antioxidant and antimicrobial properties. European food Research and Technology, vol.242,no.7,pp.1013-1023,2016.
- [20]. M.M.Cowan, Plant Products as antimicrobial agents, In Clinical Microbiology Reviews, vol.12, no.4,pp.564-582, American Society of Microbiology(ASM).1999.
- [21]. A.M.M.Shomeet, A.M.I.E.I.-Samadisy, R.M.A. E.I. Kholy and I.S. Ibrahim, Effect of fungicides, antioxidants and their mixtures on mycelial growth of some fungi. Middle East Journal of Applied Sciences, vol.8 no.2 pp.645-655, 2018.
- [22]. G.Simonetti, A.Villa, and N.Simonetti, Enhanced contact activity of Flucanzole in association with antioxidants against fluconazole-resistant organisms. Journal of Antimicrobial chemotherapy, vol.50.no.2, pp257-259,2002.
- [23]. Eimad Dine Tariq Bouhlall, Mgal Derouich, Reda Meziani and Adil Essarioui. Antifungal potential of phytochemicals against Mauginella scaettae, the plant pathogen causing inflorescence rot of Datepalm. Scientificia, vol.2021.Article. ID 1896015, 8 pages 2021.Research Article/ Open access vol.2021/ Article ID1896015. https://doi.org/10.1155/2021/1896015.
- [24]. Hasan A., Farman M., Ahmed I.Flavanoid glycosides from Indigofera hebepetaela. Phytochemisrry 1994;33:275-276.
- [25]. Krishna K.T., Ranjini C.E., Sasidharan V.K. Antibacterial and antifungal activity of secondary metabolites from some medicinal and other common plant species. J. Life Sciences 1997;2:14-19.
- [26]. Singh I.and Singh V.P. Antifungal properties of aqueous and organic solution extracts of seed plants against *Aspergillus flavus* and *Aspergillus niger*, Phytomorphology.2000;50:151-157.
- [27]. Natrajan E., Senthilkumar S., Xavier F.T., Kalaiselvi V. Antibacterial activities of leaf extracts of *Alangium salvifelium* J.Trop. Med.Plants 2003;4:9-13.
- [28]. Natrajan D.,Brito J.S.,Srinivasan K.,Nagmurgan N.,Mohansundari C., Perumal G. Antibacterial activity of *Euphorbia fusiformis* a rare medicinal herb.J.Ethnopharmacol, 2005; 102:123-126.
- [29]. De Boer HJ, Kool A., Broberg A., Mziray W.R., Hedberg I., Levenfors J.J. Antifungal and antibacterial activity of some herbal remedies from Tanzania. J. Ethnopharmacol, 2005;96-461-469.
- [30]. Chang S.T., Chen P.F., Chang S.C. Antibacterial activity of leaf essential oils and their constituents from *Cinnamon osmopholeum* J.Ethnopharmacol.2001;77:123-127.
- [31]. Marino M., Bersani C., Comi G.Impedance measurements to study the antimicrobial activity of essential oils from Lamiaceae and Compositae.2001.Int.J.Food.Microbiol.67:187-195.
- [32]. Ark, P.A. and Thompson, J.P.(1959). Antibiotic properties of seeds of wheat and Barley.Plant disease Repotr.43:276-282.
- [33]. Dixit,S., Dubey, N.K., Tripathi, N.N.and Dixit,S.N(1983).Cedrus Oil- promising storage fungitoxicant.

Copyright to IJARSCT www.ijarsct.co.in

# IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

### Volume 2, Issue 4, June 2022

Journ.Stored Prod.Res.19:159-162.

[34]. Gurjar, M.S., Shahid Ali, Masood Akhtar, Kangabam S.S.2012.Scientific Research publishing. Visited at Google Scholar.