WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Pharmacological Activities & Phyto-Chemical Constituesnt Of Peristrophe Bicalyculata – A Mini Review

Kuntal Pal[1], Dev Sarkar[2]

[1]Asst. Manager, Research & Development Dept., Mendine Pharmaceuticals Pvt. Ltd., Alipore, Kolkata, West Bengal
[2]Junior Research Scientist, Dhanwantary Bioscience Pvt. Ltd., Rajarhat, West Bengal
*Corresponding Author:- kuntalpal20@gmail.com

ABSTRACT

Ayurvedic herbs have a wide range of impacts on various ailments. These traits are included in a small number of bioactive molecules that are present in the plants and need to be extracted utilizing a range of methods (e.g., percolation and oxidation). To maintain health in this fast-paced society, medications must work well. Several traditional medical systems, like Kempo, ancient Chinese Medicine (TCM), Ayurveda, and herbal medicines, have long shown some beneficial results, despite the fact that modern medicine has only been around for a century. People can maintain their health and treat illnesses with fewer side effects by using these drug systems. Peristrophe bicalyculata is a little-known plant that can make a big difference during that period. The different illnesses for which it is used are described in this brief review.

Key Words: Soxhlation, Percolation, Kempo, TCM, Ayurveda, Herbal Medicine.

INTRODUCTION

Overview Found almost everywhere in Africa, Afghanistan, and India, *Peristrophe bicalyculata* is a member of the Acanthaceae family and can reach a height of 60 to 180 cm. It is commonly known as Kali Aghedi in Hindi and Kakajangha in Sanskrit. In addition to its antibacterial qualities, the herb is used to treat ear and eye disorders, fever, colds, coughs, sprains, bone fractures, and snake poison. In this review, we have looked at some of the phytochemical and pharmacological bioactives of the plant. [1]

PHARMACOLOGICAL ACTIVITIES

Anti-Hypertensive Activity

Hypertension is a major public health issue in both developed and developing countries. This is one of the main reasons why so many experts have started researching different plants in an effort to find a cure. It has been found that Peristiophe bicalyculata leaves can effectively cure hypertension when infused in water. The bio-active metabolites are extracted from Peristrophe bicalyculata leaves and given to L-NAME hypertensive rats in order to determine the extracts' and the isolated bio-actives' angiotensin converting enzyme inhibitory activities. The cold water extract had a longer duration of action and significantly ($p < 0.05$) reduced the mean arterial blood pressure (MABP) of L-NAME hypertensive rats when compared to other extracts. [2]]

Anti–Bacterial Activity

The ethanolic extracts of Peristiophe bicalyculata were tested for their antibacterial activity against Salmonella typhi, Staphylococcus aureus, Escherichia coli, Enterococcus aerogenes, and Bacillus cereus using the disc diffusion method. Peristiophe bicalyculata's ethanolic extract was the most efficient against E. coli, B. cereus, and S. typhi. The largest zone of inhibition was seen in E. coli (18±0.8 mm). [3]

Anti-Cancer Activity

Hexane, chloroform, ethyl acetate, and methanol were used to make the extracts, which were then analyzed using Liquid Chromatography-Mass Spectrometry (LC-MS). Their cytotoxic effects on human cervical (HeLa) and lung cancer (MRC5-SV2) cells were assessed using the MTT and LDH release assays. According to the results, it has cytotoxic qualities that could aid in the development of novel anti-cancer drugs. [4]

Anti-Hyperlipidemic Activity

Men Wistar Rats were divided into two primary groups, Group A and Group B. Group A was utilized to investigate the preventive and therapeutic effects of the plant extract, respectively. Before hyperlipidemia was induced, animals in group A were given the extract unrestrictedly for 26 days, while animals in group B were given the extract unrestrictedly for 2 days, beginning two hours after the induction of hyperlipidemia. Atorvastatin was the usual medicine. 48 hours after rats were administered 1.0 g/kg Poloxamer 407 (P-407) intraperitoneally to cause hyperlipidemia, blood samples were obtained. On day 28, blood samples were collected to determine the plasma lipid profile. Total cholesterol, LDL cholesterol, and triglycerides were significantly lower ($p < 0.05$) in animals treated with the extract in both groups compared to the hyperlipidemic control group, even though HDL cholesterol levels sharply increased. In most cases, there was no discernible difference between the cholesterol levels of rats administered the extract (especially at a higher dose) and rats administered atorvastatin. [5]

Antioxidant Activity

The antibacterial activity against respiratory tract infections, such as *Staphylococcus aureus, Streptococcus pneumonia, Streptococcus pyogenes, Pseudomonas aeruginosa, and Klebsiella pneumoniae,* was evaluated using agar well diffusion. The minimum inhibitory concentrations (MICs) were ascertained by the two-fold serial dilution approach. Erythromycin was used as the positive control and dimethyl sulfoxide (DMSO) as the negative control. The antioxidant activity of the plant extract was examined using the free radical scavenging technique. The results showed that the chloroform extract had a higher degree of antibacterial activity than the other extract. The zone of inhibition of the chloroform extract against bacteria ranged from 9.3±0.59 mm to 26.6±0.66 mm. The methanolic extract has the highest level of antioxidant activity when compared to other extracts. This study suggests that this plant can be used in herbal medicine to treat viral respiratory diseases because it naturally possesses antioxidant properties. [6]

PHYTO-CHEMICAL CONSTITUENTS

The antibacterial activity against respiratory tract infections, such as *Staphylococcus aureus, Streptococcus pneumonia, Streptococcus pyogenes, Pseudomonas aeruginosa, and Klebsiella pneumoniae,* was evaluated using agar well diffusion. The minimum inhibitory concentrations (MICs) were ascertained by the two-fold serial dilution approach. Erythromycin was used as the positive control and dimethyl sulfoxide (DMSO) as the negative control. The antioxidant activity of the plant extract was examined using the free radical scavenging technique. The results showed that the chloroform extract had a higher degree of antibacterial activity than the other extract. The zone of inhibition of the chloroform extract against bacteria ranged from 9.3±0.59 mm to 26.6±0.66 mm. The methanolic extract has the highest level of antioxidant activity when compared to other extracts. This study suggests that this plant can be used in herbal medicine to treat viral respiratory diseases because it naturally possesses antioxidant properties. [6]

CONCLUSION

This mini review reveals that the plant *Peristrophe bicalyculata* consist of Anti-Hypertension Activity, Anti-Cancer Activity, Anti-Bacterial Activity, Anti-Oxidant activity, Anti-Hyperlipidemic Activity etc. and also there have some special Phyto-Chemical constituents present in it for which this plant exhibit these pharmacological activities. But this plant also consists a wide number of medicinal values hidden in it. So there have a vast scope of research on this said plant.

CONFLICT OF INTEREST

The authors have no Conflict of Interest.

REFERENCE

1. Gaudani Rashmi, Patel Jaya, Prajapati Hardik*et. al.Peristrophe bicalyculata* - A Review. Pharmacognosy Journal. Volume 2, Issue 14, September 2010, Pages 39-45.
2. Mansurah A Abdulazeez, Sani Ibrahim, Danladi A Ameh*et. al*. Bioassay-Guided Fractionation and Antihypertensive Properties of Fractions and Crude Extracts of *Peristrophe bicalyculata* (Retz) Nees. Acta Pol Pharm. 2015 Mar-Apr;72(2):319-28.
3. N Janakiraman, Sathish S Sahaya, M Johnson. Anti–bacterial studies on *Peristrophe bicalyculata* (Retz.) Nees. Asian Pacific Journal of Tropical Biomedicine. Volume 2, Issue 1, Supplement, January 2012, Pages S147-S150.
4. Mansurah A. Abdulazeez, Hiba A. Jasim, Musa Bashir*et. al*. *Peristrophe bicalyculata* (Retz) Nees contains principles that are cytotoxic to cancer cells and induce caspase-mediated, intrinsic apoptotic death through oxidative stress, mitochondrial depolarisation and DNA damage. Biomedicine & Pharmacotherapy. Volume 147, March 2022, 112597.
5. Abdulazeez Mansurah. Effect of *Peristrophe bicalyculata* on lipid profile of P- 407-induced hyperlipidemic Wistar rats. Journal of Medicinal Plants Research. 2011. Vol. 5(4), pp. 490-494.

6. Prashant Arya. Antioxidant, Phytochemical and Antibacterial Action of Himalayan Medicinal Herbs *Peristrophe bicalyculata* Leaves Extract Against Respiratory Tract Pathogens. Int J Pharm Pharm Sci, Vol 10, Issue 3, 16-21.
7. N Janakiraman, M Johnson, Sathish S Sahaya. GC–MS analysis of bioactive constituents of *Peristrophe bicalyculata* (Retz.) Nees. (Acanthaceae). Asian Pacific Journal of Tropical Biomedicine. Volume 2, Issue 1, Supplement, January 2012, Pages S46-S49.