

VOLUME 9

ISSUE 1

2023

ISSN 2454 – 3055



**INTERNATIONAL
JOURNAL OF
ZOOLOGICAL
INVESTIGATIONS**

*Forum for Biological and
Environmental Sciences*

Published by Saran Publications, India



International Journal of Zoological Investigations

Contents available at Journals Home Page: www.ijzi.net

Editor-in-Chief: Prof. Ajai Kumar Srivastav

Published by: Saran Publications, Gorakhpur, India



ISSN: 2454-3055

Isolation and Identification of Bioactive Compounds and Detection of Antimicrobial Activity of *Senna aruciulata*- A Review

Ashwini M.* and Rajasulochana P.

Department of Microbiology, Saveetha Medical College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Saveetha Nagar, Thandalam, Kanchipuram, Tamil Nadu 602105, India

*Corresponding Author

Received: 20th February, 2023; Accepted: 21st May, 2023; Published online: 21st June, 2023

<https://doi.org/10.33745/ijzi.2023.v09i01.110>

Abstract: The Goal of this study was to identify *Senna auriculata*'s bioactive chemical as well as it's over all phytochemical composition, *in vitro* antibacterial, antifungal, and phytochemical screening properties. Since ancient times people have employed therapeutic plants, often known as medicinal herbs, in traditional medicinal procedure. Plant produce various chemical components and defence against various insect and cure illnesses. *Senna auriculata* has been employed in a variety of medical procedure. It has number of advantage and therapeutic qualities. *Senna auriculata* has high medicinal properties, making it popular for home remedies. Now researchers are interested towards the herbal plants because of their high medicinal properties. Peoples also taking home remedies using the herbal product and some homemade preparation to cure cold and cough as a initial medicine. Phytochemicals research revealed that leaf extract of *S. auriculata* contains alkaloid, sugars, flavonoids, cardiac glycosides, phenols, protein, saponins and terpenoids. Methanol extract showed the presence of much more phyto constituents than others solvents. Aqueous and petroleum ether extract revealed fewer phytochemicals to be present, Our Investigations will use medicinal leaves as a starting point and our goal is to find a bioactive molecule that has a stronger antimicrobial action against bacteria like *Staphylococcus aureus* and *E. coli*.

Keywords: *Senna auriculata*, Antibacterial, Antifungal, *Staphylococcus aureus*, *Escherichia coli*

Citation: Ashwini M. and Rajasulochana P.: Isolation and identification of bioactive compounds and detection of antimicrobial activity of *Senna aruciulata*- A review. Intern. J. Zool. Invest. 9(1): 995-997, 2023.

<https://doi.org/10.33745/ijzi.2023.v09i01.110>



This is an Open Access Article licensed under a Creative Commons License: Attribution 4.0 International (CC-BY). It allows unrestricted use of articles in any medium, reproduction and distribution by providing adequate credit to the author (s) and the source of publication.

Introduction

Natural medicine has been practiced utilising herbal products since ancient times. It is still used today since modern medication is too expensive. Due to the numerous advantages of herbal therapy, researchers are increasingly focusing on *Senna aruciulata* (L.) Roxbavartaki. Ayurvedic and

siddha system of medicine in India use the traditional medicinal herb *Cassia aruciulata* extensively to cure variety of illnesses. The most medicinal property of almost all the plants components including the flowers, leaves, seeds, barks and roots have been documented. It has



Fig. 1: Isolation of bioactive compounds from *Senna auriculata*.

Table 1: Antibacterial activity of plant extract

References	Antibacterial Activity
Gandhi <i>et al.</i> (2022)	With a maximal zone of inhibition of 13.3 mm against <i>B. subtilis</i> , MRSA – 11.66 mm, <i>P. aeruginosa</i> – 11 mm, and <i>E.coli</i> – 9.66 mm the methanolic extract demonstrate potential antibacterial activity against the tested Pathogens in a concentration-dependent manner. <i>S. auriculata</i> leaf extract phytochemical analysis reveals the presence of alkaloid, carbohydrate, flavonoids, cardiac glycosides, protein, saponins, tannins and terpenoids. Comparatively more Phytoconstituents were found in methanolic extract than other solvents. Fewer phytochemicals were seen in petroleum ether and aqueous extract.
Murugan <i>et al.</i> (2021)	The minimum inhibitory concentration [MIC] against <i>B. subtilis</i> , <i>Pseudomonas aeruginosa</i> , <i>E. coli</i> , and <i>K. pneumoniae</i> and fungal strains was measured for the successive extract of the lichen <i>P. sulcata</i> (<i>C. albicans</i> and <i>A. fumigatus</i>). In all concentration the clarified samples are capable of preventing the growth of bacteria and fungi. The bioassays are caused by the extracts phenolic and flavoid concentration. The abundance of Flavonoids and phenols exhibit high level of bioactivity in both the <i>P. saxailis</i> and <i>P. sulcata</i> as acetone extract.

historically been used to treat metabolic problems like diabetes, asthma, rheumatism, dysentery and other conditions.

Senna auriculata also known as *Cassia aruciulata* is a common traditional and Asian beverage nutritional plant that is extensively

utilised in Indian traditional medicine to treat blood sugar levels, bladder infections, conjunctivitis and ophthalmia (Deshpande and Bhalsing, 2013; Khader *et al.*, 2017). Another beverage preparation known as “kalpa herbal tea” using *S. auriculata* (dried flower) as its main

ingredients is popular among those with diabetes and urinary tract infection. The leaves of *S. auriculata* (dried flower) have also been used to treat leprosy, herpes, ulcer and skin conditions. Additionally, this plant's roots and blossoms contain alexeteric and antidiabetic qualities. The main phytochemical in *Senna auriculata* include alkaloids, anthraquinones, glycosides, sucrose, saponins, phenols, terpenoids, flavonoids, tannins, steroids, palmitic acid, linoleic acid, benzoic acid, Epicatechin, ferulic acid, quercetin-3-O-rutinoside, quercetin, 1-methyl butyl ester, resorcinol, tocopherol-D-mannosidase, quercetin and proanthocyanidin B1. The isolated compounds and extracts from its various parts have a variety of pharmacological properties.

Senna auriculata flower extract in powder form is used to prepare the sample (Fig. 1). HPLC is used to identify Bioactive chemicals. Bioactive compound is then isolated. Finally, Antimicrobial activity is detected by looking for antibacterial and antifungal activity.

Table 1 illustrates the studies related with the antibacterial activity of plant extract.

References

- Deshpande HA and Bhalsing SR. (2013) Recent advances in the phytochemistry of some medicinally important *Cassia* species: A review. *Int J Pharm Med Bio Sc.* 2(3): 60-67.
- Gandhi AD, Umamahesh K, Sathiyaraj S, Suriyakala G, Velmurugan R, Al Farraj DA, Gawwad MRA, Murugan K, Babujanarthanam R and Saranya R. (2022) Isolation of bioactive compounds from lichen *Parmelia sulcata* and evaluation of antimicrobial property. *J Infect Public Hlth.* 15(4): 491-497.
- Khader SZA, Syed Zameer Ahmed S, Balasubramanian SK, Arunachalam TK, Kannappan G, Mahboob MR, Ponnusamy P and Ramesh K. (2017) Modulatory effect of dianthrone rich alcoholic flower extract of *Cassia auriculata* L. on experimental diabetes. *Integr Med Res.* 6 (2):131–140.
- Murugan Prasathkumar, Kannan Raja, Krishnan Vasanth, Ameer Khusro, Subramaniam Sadhasivam, Muhammad Umar Khayam Sahibzada, Mohamed Ragab Abdel Gawwad, Dunia A. Al Farraj, Mohamed SE. (2021) Phytochemical screening and *in vitro* antibacterial, antioxidant, anti-inflammatory, anti-diabetic, and wound healing attributes of *Senna auriculata* (L.) Roxb. leaves. *Arabian J Chem.* 14: 103345.