

Investigations on biological activity of *Vetiveria zizanioides* L. Nash, a palingogenesis of some important findings in miracle grass

Suaib Luqman

Molecular Bioprospection Department, Biotechnology Division, Central Institute of Medicinal and Aromatic Plants (Council of Scientific and Industrial Research), Lucknow-226015, India.

E mail: s.luqman@cimap.res.in

Abstract

Vetiveria zizanioides L. Nash synonymously known as *Chrysopogon zizanioides* L. Roberty (Family: Poaceae/Graminae), widely cultivated in the tropical regions of the world, is a miraculous grass native to India first developed for soil and water conservation by the World Bank during mid 1980s. Popularly known as 'KHUS', it is the major source of the well-known oil of vetiver, which is used in medicine, cosmetics and in perfumery making agarbattis, soaps, soft drinks, pan masala. Being a major constituent of 'Rasayana' in Ayurveda, different parts of the vetiver plant have traditionally been used by the Indian tribes for treating various ailments, diseases and disorders including boils, burns, epilepsy, fever, scorpion sting, snakebite, sores in the mouth, headache, toothache, weakness, lumbago, sprain, rheumatism, urinary tract infection, malarial fever, acidity relief and as an anti-helminthic. It has also been used in traditional medicine of Asia and Africa, particularly ancient Tamil literature mentions the use of vetiver for medical purposes. The essential oil of vetiver has extensive applications in toiletries and cosmetics, possesses sedative property and has traditionally been used in aromatherapy for relieving stress, anxiety, nervous tension and insomnia. Root is also important in traditional medicine as a carminative, stimulant and diaphoretic. Besides these medicinal properties of the plant, the dried culms of the plant are used as brooms and to thatch roofs. Pulp of the plant is used to prepare straw boards and paper. In India, the roots have been used for making screens, mats, hand fans, and baskets. Formulations containing oil and/or extracts of vetiver have been reported to treat inflammatory bowel disease, urinary tract infection, and in making insect repellents. Research on various aspects of vetiver make it an excellent plant describing many characteristics including phytoremediation, water purification, leachate and effluent disposal, utilizing wastewater, removing nitrogen and phosphorus etc. It is one of the most promising aromatic plants known to possess antimicrobial, antioxidant and termicidal properties. However, the plant has not been studied exclusively for other pharmacological activities and there is a lack of scientific evidence to prove these effects. We are studying bioactivity of vetiver root as a part of our effort to discover plant-based biologically active molecules since last many years using molecular and cell target based assays. In our published reports, we showed potent antibacterial, drug-resistant modifying, hydroxyl radical scavenging, anticancer, antihepatotoxic and antioxidant activity in intact and spent root of vetiver. In view of our findings, the present paper recapitulates some important findings on the bioactivity of *Vetiveria zizanioides* L. Nash and a palingogenesis has been made for this miracle grass.

Key words: Antioxidant, antimicrobial, hydroxyl radical scavenging, hepatoprotective, Khus