

Folk Medicine, Pharmacological and Biological Activities

In India, the herb of *Digera muricata* is considered as a cooling, astringent to the bowels and also used as laxative. The flowers and seeds are used to treat urinary discharges. Boiled root infusion is given to mother after child birth for lactation purpose (Mathad and Mety, 2010). Leaves and young shoots of *Digera muricata* are used in India as a vegetable and given to relieve constipation. It is also used internally against digestive system disorders. Leaf paste is applied locally to prevent pus formation (Sharma *et al.*, 2011b). The leaves are used for treatment of kidney stones (Reddy *et al.*, 2010) and diabetic and the flower and seeds to treat urinary discharges (Mety *et al.*, 2011). In Pakistan, *Digera muricata* is used as an alternative in the treatment of renal disorders (Khan *et al.*, 2009), aperient, and refrigerant and in sexual disorders (Khan and Younus, 2011; Khan *et al.*, 2011a,c). The plant is used as an alternative in secondary infertility (Khan and Younus, 2011). It is also emetic, haematinic and expectorant (Kumar *et al.*, 2012b). In Indian traditional medicine, it is also used for treatment of kidney stone and urinary tract troubles. This was proved by investigation of the extract of leaf and whole plant (Sharma *et al.*, 2011a). The leaves and roots of *Digera muricata* are reportedly used in the preparation of herbal drugs (Sarada and Rao, 2006).

Antioxidant properties of *Digera muricata* methanol extract against the CCl₄-induced toxicity in kidneys and testis had been well documented (Khan *et al.*, 2009; Khan and Ahmed, 2009). Alterations induced with CCl₄ in kidneys were suppressed with *Digera muricata*, as were evident by the higher activities of antioxidant enzymes while lower concentration of lipid peroxides. It also inhibited the genotoxicity and suppressed the activity of telomerase enzyme induced with CCl₄ in kidneys of rat (Khan *et al.*, 2009). Similarly, its protective effects against the CCl₄ induced liver and testicular toxicity have been characterized (Khan and Ahmed, 2009). *Digera muricata* restored the disruptions induced with CCl₄ for various male hormones in rat (Khan and Ahmed, 2009; Khan and Younus, 2011). The protective potential of the methanol extract of the plant on acrylamide induced hepatotoxicity in rats, was reported (Khan *et al.*, 2011c). The methanol extract of the plant is able to ameliorate oxidative stress in adrenal gland induced by CCl₄ in rat (Khan and Younus, 2011). The plant extracts showed promising results towards free radical scavenging and antioxidative activities (Mety *et al.*, 2011).

The antioxidant and fertility effects of *Digera muricata* have been reported. The results obtained by Khan *et al.* (2011a) suggested the protective potential of the hexane extract of the plant against the CCl₄-induced liver and testicular toxicity.

The plant exhibited antibacterial and antifungal activities (Mathad and Mety, 2010; Sharma *et al.*, 2011b). The essential oils obtained from leaves and roots have been reported to be antimicrobial and antihelmintics (Sarada and Rao, 2006).