

In Ayurveda, the root-bark is given in splenic, renal and hepatic conditions and also as an analgesic, anthelmintic, deobstuent, diuretic, expectorant and vasoconstrictive (Chiej 1984). Internally it is used in the treatment of gastrointestinal infection, diarrhoea and rheumatism (Bown 1995). Externally, it is used to treat skin conditions, capillary weakness and easy bruising (Genders 1994; Bown 1995). Alkaloids, to the tune of 0.91% from root-bark and 0.86% from seeds, are isolated, and the maximum alkaloid content was found in the roots, of which stachydrine constituted 87.43% of the total alkaloid present (Sadykov et al. 1981). In Unani medicine, the decoction of root bark is prescribed as a deobstruent to the liver and spleen, as an anthelmintic and anti-inflammatory agent (Chopra et al. 1999). Four bacterial strains (viz. *Pseudomonas stutzeri* var. *mendocina*, *Comamonas* sp., *Agrobacterium tumefaciens* bivar. 2 and *Sphingobacterium* sp.), isolated from the rhizosphere of capers, were found to be able to fix N₂ (Andrade et al. 1997). The ethanolic extract of *C. spinosa* root bark reported anthelmintic activity. It acts as anti-allergic and antihistaminic agent (Zhan 1978).

Capparis spinosa has been reported to possess hepatoprotective activity (Romeo et al. 2007; Gadgoli and Mishra 1995) and p-methoxy benzoic acid was found to be responsible for this activity (Gadgoli and Mishra 1995). Approximately 600 mg of dried, whole-plant extract per day has been used in a mixed preparation in experiments investigating hepatoprotective effects. Similarly, a clinical trial investigating the efficacy of a mixed preparation containing caper extract combined with other extracts found an improvement in liver function laboratory values (Huseini et al. 2005). The aqueous extract of *Capparis spinosa* shows hypotensive activity in spontaneously hypertensive rats (Ali et al. 2007). The alcoholic extract of *C. spinosa* reported antimicrobial activity (Mahasneh 1996). It is used as a metabolic corrective in newborns (Dhurandhar 1973). Rutin or flavanoids from capers, prevented an increase in serum levels of alanine amino transferase, aspartase aminotransferase and aldolase caused by J-irradiation, thereby reducing radiation sickness. It also acted as a coagulation enhancer and diuretic (Altymyshev 1981).

In normal and diabetic (induced) rats fed aqueous extracts of the powdered caper fruits for a two-week period, a reduction in plasma cholesterol and triglycerides was demonstrated (Eddouks 2005). A 2% aqueous gel has been used for antihistaminic effects (Trombetta et al. 2005). The leaves are used for the treatment of gout, coughs, earaches, expelling stomach worm, rheumatism, paralysis, toothaches, as a diuretic and for diabetes control (Andrade et al. 1997; Sharma 2003). The aqueous extract of the aerial parts were reported to possess anti-inflammatory activity and cappaprenol-13 isolated as an anti-inflammatory principle from capers was found to inhibit carrageenan-induced paw edema in rats by 44%, compared to 67% by standard oxyphenbutazone (Al-Said et al. 1988). The juice of the leaves and fruits of capers are used as an anticycstic, a fungicide and a bactericide.

12.4 DACTYLORHIZA HATAGIREA (D. DON)

Dactylorhiza hatagirea (D. don) (Figure 12.3) is a high-value medicinal plant species abundantly found in different temperate regions of India including certain parts of the Trans-Himalayan regions of Ladakh. It is commonly known as the 'marsh orchid',