

Citric and malic acids were identified from the bulbs of *Narcissus poeticus* (Smeby *et al.*, 1954).

Folk Medicine, Pharmacological and Biological Activities

The bulbs and flowers of *Narcissus* species were reputed as antispasmodic and useful in the treatment of epilepsy, diarrhea, intermittent fevers, hooping cough, asthma etc., also in the treatment of ulcers. The bulb of *Narcissus* was regarded as an emetic if taken in a boiled state, while the decoction was reported to exite vomiting and to be useful against cold. The oil of *Narcissus* was used by the early Arab writers as a medicament to cure headache and as an emollient for reducing the pains of bladder, ear... etc. (Täckholm and Drar, 1954; Rizk, 1959).

Narcissus jonquilla bulbs caused poisoning in livestock in Holland when fed as an emergency during the Second World War. Also, toxic symptoms such as gastroenteritis, vomiting, purging and convulsions were abserved in man (Kingsbury, 1964; El-Moghazy *et al.*, 1976). The bulb and flower of *Narcissus jonquilla* L. are emetic and have been used for diarrhea, cramp and epilepsy and externally on sores (Watt and Breyer-Brandwijk, 1962).

The glucomannan, isolated from bulbs of *Narcissus poeticus* has low toxicity and exhibits distinct hypolipidemic activity (Zhauynbaeva *et al.*, 2003). The alkaloid narciclasine, isolated from several *Narcissus* species possesses marked antimiotic activity on several biological systems (ascites S180, megaloblasts of chick embryo, tips of wheat radicles and *Eschericia coli* (Ceriotti *et al.*, 1967; Giovanni *et al.* 1967). Narciclasine had a colchicine-like effect at 0.5 mg/kg, and after 2 hours, 0.9 mg/kg markedly decreased mitosis, completely inhibiting it after 4 hours. Its LD₅₀, is 5 mg/kg in mice (Ceriotti *et al.*, 1967). The alkaloid pseudonarcissine, extracted from flowering bulbs of *Narcissus pseudonarcissus* resembles atropine physiological effect. An alkaloid obtained after flowering acts oppositely, causing copius salivation, increases skin secretion, contraction of the pupil of the eye, and only slight nausea (McNab, 1916).

The acetylcholinestrse (AChE) activity of some *Narcissus* extracts or their alkaloidal constituents has been reported (Brown *et al.*, 2002; Ingkaninan *et al.*, 2002; Lopez *et al.*, 2002a). In addition to galanthamine (isolated from several *Narcissus* species) being the most interesting for its use in the treatment of Alzheimer's disease, as a cholinesterase inhibitor, *Narcissus assoanus* (a lycorine-type alkaloid bearing species) showed high AChE activity (Lopez *et al.*, 2002a). The alkaloid unguiminorine, isolated from *Narcissus* 'Sir Winston Churchill' showed a mild inhibitory effect on AChE (Ingkaninan *et al.*, 2000).