

Sedative Effects of Hot Flower Infusion of *Nyctanthes arbo-tristis* on Rats

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5 Abstract

Hot infusion of *Nyctanthes arbo-tristis* Linn. (Oleaceae) flowers are used often by some elderly Sri Lankan Buddhist monks as a potential sedative. However, in Ayurvedic, traditional and folkloric medicine of Sri Lanka, no such implication has been made regarding therapeutic activity of these flowers. The aim of this study was to investigate the sedative potential of *N. arbo-tristis* flowers in rats using the hole-board technique. A hot flower infusion was made as used by the monks in different concentrations (3.7, 7.5, 12.5, or 18.7 mg/kg) and was orally administered. Sedative potential was assessed 2 h post-treatment. The infusion had a moderate dose-dependent conscious sedative activity in male but, surprisingly, not in female rats. The infusion was well tolerated (in terms of overt toxic signs, liver or kidney functions) even following subchronic treatments and also did not show any overt signs of dependence (classical signs of withdrawal reactions). Sedation appears to result mainly by antioxidant, membrane stabilizing, and by yet undiscovered mechanisms of sedative actions of anthocyanin, a flavonoid, in the flower.

Keywords: Anthocyanin, antioxidant, *Nyctanthes arbo-tristis*, sedation, toxicology.

Introduction

Nyctanthes arbo-tristis Linn. (Oleaceae), night-flowering Jasmine in English, *sepalika* in Sinhala, and *manjatpu* in Tamil, is a small tree that is alien to Sri Lanka (Jayaweera, 1981). It is now commonly found in Buddhist temples and home gardens almost throughout the country. The tree flowers at night all the year round, and these start to fall from midnight. The flowers are fragrant and

bear six white petals and a characteristic orange-colored glabrous corolla. These flowers are esteemed as votive offerings to Buddha statues and sacred Bo trees (*Ficus religiosa*) in the morning. By evening, these offered flowers are removed and some Buddhist priests shade-dry them and make an herbal tea (infusion). They believe that it reduces nervousness, excitability or irritability, and agitation. This may possibly be inducing a calming or soothing effect. Herbal medicines are commonly used in many developing countries as nervines for mild neurological disorders (Walter & Rey, 1999).

Phytochemically, *N. arbo-tristis* flowers are reported to contain an essential oil similar to that of jasmine and a modified diterpenoid nyctanthin (Sastvi, 1962). Herbal drugs are commonly used as sedatives in traditional medicines of several countries, and they contain appreciable amounts of flavonoids to which their potential sedative activities have been attributed (Soulimani et al., 1997; Ratnasooriya et al., 1999; Ratnasooriya & Dharmasiri, 2001; Rakotonirina et al., 2001; Akah et al., 2002). More recently, anthocyanins from *Papaver rhoeas* (Soulimani et al., 2001) and an essential oil from *Lippia* spp. (Pascual et al., 2001) have shown to possess potent sedative actions. Collectively, these observations suggest that *N. arbo-tristis* flowers may also possess sedative activity, although this perceived benefit has not been claimed in Ayurvedic, traditional or folkloric medicine in Sri Lanka (Jayasinghe, 1979; Jayaweera, 1981). If efficacious sedative action is present in these flowers without undesirable side-effects typical of classical Western sedative drugs (Anonymous, 2000; Mckenry & Salerno, 1992) which are also generally expensive in developing countries, then it would be of clinical relevance as a cost-effective herbal sedative: after all, these flowers are obtained freely all the year round and many

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