

Autecology, ethnomedicinal and phytochemical studies of *Nepeta binaludensis* Jamzad a highly endangered medicinal plant of Iran

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[View references \(^ ^\)](#)

Abstract

Nepeta binaludensis Jamzad is a rare medicinal plant of Iran, which is highly endangered by severe harvesting and unsustainable herbal collection. A research was conducted to study the ecobiological background, ethnomedicinal use and chemical properties of this species in the wild habitats during the years 2002 and 2003, to understand their conservation biology as well as to predict their behavior under artificial cultivation. Results indicated that this species grows in north-facing slopes up to 20% with altitudes of 2200 to 2700 m and mean annual rainfall ranging from 300 to 370 mm and mean annual temperature of 16 to 17°C. This plant grows on light soils with a neutral pH and poor in mineral content. Height of individual plants varies from 46 to 92 cm with a crown diameter of 39 to 42 cm, a plant density of nearly 4 pl.m⁻² and a dry matter of 22 to 22 g.m⁻². Plant density, biomass, plant height, crown diameter and also soil coverage of this species were decreased by increasing slopes. There was no relationship between essential oil percentage of this species and slope and altitude. The whole growth period of this species is nearly 102 days which are equivalent to 1978,9 GDD. Results showed that the aerial parts of this species are used mostly by local people to treat digestive disorders and nervous disorders and depression. Essential oils of the plant aerial parts, which were collected from two regions Dowlat Abad and Freizi, were slightly yellow and the yields were 0.2% (v/w) in both regions. Eighteen components representing 90.2% and 97.0% of the total oils of these regions were identified, respectively. The major constituent of the oxygenated monoterpene-rich oils was 1,8-Cineole (77.8% and 73.2% respectively).

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