

*Nepeta cataria*, *Nepeta* spp.

## Catnip

### Indications

Anxiety and insomnia.

### Mechanism of Action

The most studied constituents in the volatile oil of *Nepeta cataria*, *Nepeta persica*, and other *Nepeta* species are diastereomeric nepetalactones and monoterpenoids such as linalool. *Nepeta persica* contains a volatile oil that consists of 2.8% and 30.5% of a combination of linalool and nepetalactones.<sup>1</sup> Overall, *Nepeta* spp. leaves and flowers contain approximately 0.2%–1% volatile oil.<sup>2</sup>

Nepetalactones are reported to have mild-to-moderate sedative activity.<sup>3</sup> These compounds are also responsible for the stimulant effect in cats, although 20% display active behaviors and 80% display passive behaviors.<sup>4,5</sup> Linalool is reported to have anxiolytic activity.<sup>6</sup> *Nepeta persica*, which is native to Iran, has been proven to have similar compounds to *N. cataria*.<sup>1</sup>

### Evidenced-Based Research

The elevated plus maze (EPM) model of anxiety was used to test the anxiolytic effects of a water–alcohol extract of *N. persica*. Rodents have a natural fear of open and elevated spaces, but with a reduction in anxiety, they will choose to visit open areas more frequently. With an increase in anxiety, they will tend to choose more sheltered places. Benzodiazepines such as diazepam have been shown to have significant anxiolytic effects in the EPM model and in other anxiolytic screening procedures. *Nepeta persica* plant extract in the EPM produced antianxiety effects at 50 mg/kg of body weight. The mice spent substantially more time in and made more trips to the open areas of the EPM.<sup>7</sup>

A mouse study using inhaled linalool showed marked sedative and anticonvulsant activity. The study involved placing mice in an inhalation chamber saturated with 1% or 3% linalool for 60 minutes. Immediately after inhaling the linalool, the mice were evaluated for body temperature, motor coordination, locomotion, and barbiturate-like sleeping time. Air infused with both 1% and 3% linalool was shown to both reduce body temperature and increase pentobarbital sleeping time. At a 3% linalool concentration, there was a decrease in locomotion. There was no effect on motor coordination. Unlike most anxiolytic drugs, linalool had significant sedative effects without causing impairment in motor skills.<sup>8</sup>

## Safety in Pregnancy and Breastfeeding

**Pregnancy:** Herbal reference books classify *N. cataria* as a mild emmenagogue, which means it has possible uterine stimulant properties. Caution is recommended, especially in the first two trimesters and with moderate-to-large doses.<sup>9</sup>

**Breastfeeding:** There is insufficient reliable information available.

## General Safety

Significant adverse effects have not been reported when *N. cataria* tea, tincture, and powder are used in appropriate doses. No human trials, animal trials, and case reports of negative supplement or drug interactions could be found.<sup>10</sup>

## Dosage

Capsules (100–380 mg) two to three times daily or prepared as a tea using 1–2 teaspoons simmered in a cup of water.

## Traditional Uses

*Nepeta cataria* was used as a sedative in European folk medicine and was introduced into the Americas as a sedative tea. It has been used in North America at least since the 19th century for gastric discomfort in children. Other traditional uses include antipyretic, antispasmodic, and diaphoretic for the treatment of colds, flu, and pain. It is currently popular in formulas for sleep, anxiety, colds, and flu, especially for children.

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## References

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<sup>9</sup> **American Herbal Products Association's Botanical Safety Handbook**. Boca Raton, FL: CRC Press, LLC; 1997. McGuffin M, Hobbs C, Upton R, Goldberg A, eds.

<sup>10</sup> **American Herbal Products Association's Botanical Safety Handbook**, 2nd edition. Boca Raton, FL: CRC Press, LLC; 2013. McGuffin, Gardner, eds.

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