

Centella Asiatica - Scientific Overview

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Introduction

Centella asiatica is a perennial shrub native to the swampy locations of India, South Africa, Sri Lanka, Bangladesh, northern Australia, Indonesia, Iran, Malaysia, Papua, New Guinea, and other tropical regions. Commonly known as Gotu kola, mandukparni, or Indian pennywort, the history and use of *Centella asiatica* goes back to prehistoric times. *Centella asiatica* (Gotu kola) is commonly known as the longevity herb as well as “miracle elixirs of life” in China (Baumann, 2006, Gohil et al 2010, Jahan et al 2012, Sushma et al 2010, Sushma et al 2010). Its usage spans traditional African and Chinese medicine in addition to India’s Ayurvedic system of medicine. Ayurvedic medicine is based on a holistic view of balance achieved through the bodily systems using diet, herbal treatment, and yogic breathing.

Centella asiatica has been linked to the following benefits:

- Anti-stress agent
- Improved/enhanced cognitive function
- Oxidative stress combatant (Barbosa 2008, Gohil et al 2010, Shinomol 2008).

Adaptogen

Centella asiatica is classified as a mild adaptogen. What is an adaptogen? The concept of adaptogens has existed for nearly 60 years; adaptogens are herbs that help optimize an individual’s ability to manage stress (Panossian 2017). Also known as anti-stress agents, they help protect the body from stress and assist the body in addressing the effects of stress. Commonly used medicinal plants or adaptogens include: *Bacopa monnieri*, *Centella asiatica*, *Passiflora incarnata*, *Valeriana officinalis*, *W. somnifera*, *Humulus lupulus*, *Matricaria chamomilla*, *Galphimia glauca*, *Melissa officinalis*, *Piper methysticum*, *Scutellaria lateriflora*, and *Ziziphus jujube* (Gupta 2016).

Anti-Stress Agent

According to the Stress in America Survey™, 2017 saw a significant increase in the percentage of Americans who experienced at least one symptom of stress in the past month, at 75% compared to 71% in 2016. The survey respondents reported their symptoms of stress fell into the following categories: 36% feeling nervous or anxious; 35% experiencing irritability or anger; and 34% experiencing fatigue (APA 2017). Ancient remedies and Ayurvedic medicine have utilized *Centella asiatica* as a psychoactive medicinal plant for anxiety-related issues for centuries (Zhang 2004). In a 60-day clinical study among males and females, *Centella asiatica* was consumed twice daily following a meal. Subjects were evaluated using a psychological rating scale at baseline, day 30 and day 60. Consuming *Centella asiatica* twice daily significantly reduced the stress phenomenon (Jana et al 2010).

Enhanced Cognition



Cognition includes the group of mental processes that lead to knowledge through thought, experience/practice, and the five senses. In a meta-analysis of eleven studies with five studies comparing *Centella asiatica* to placebo and six studies comparing *Centella asiatica* in combination with another herb, results indicated some promise in the use of *Centella asiatica* in helping improve working memory (Puttarak et al 2017). Positive effects were observed on numeric working memory tests with decreased working time. Additionally, secondary outcomes showed improvements in self-perceived scores of increased alertness and calmness after two months of use (Wattanathorn et al 2008). Gotu kola (*Centella asiatica*) has been linked to improvements in a variety of cognitive conditions involving learning, memory, and cognition (Kumar & Gupta 2002, & Wattanathorn et al 2008).

Oxidative Stress Combatant

Cognitive disorders/issues have been associated with mitochondrial dysfunction and oxidative stress. In a 4-week study using an aqueous extract of *Centella asiatica* fed to prepubertal male mice, biochemical markers for oxidative stress were measured; free radical scavenging activity was observed in established in-vitro test systems. Additionally, the *Centella asiatica* extract demonstrated significant scavenging activity of both superoxides and hydroxyl radicals, which supports its multiple antioxidant potential. These results suggest that the antioxidant properties could be driving the modulatory effects of the *Centella asiatica* in vivo and have the potential use as an oxidative combatant (neuronal protectant) (Shiminomol 2008). Aluminum and *Centella asiatica* were administered over a period of 6-weeks to male Wistar rats to assess the neuroprotective effect of *Centella asiatica*. Aluminum, a neurotoxic metal, is believed to be involved in the progression of neurodegenerative processes. *Centella asiatica* was shown to have neuroprotective potential against the aluminum-induced cognitive dysfunction (Prakash & Kumar 2013).

Summary

Centella asiatica (Gotu kola), with its ancient roots in Aruvedic traditional medicine, has numerous benefits, including enhanced cognition and acting as an anti-stress agent and oxidative support combatant. Numerous studies have been published throughout the world on *Centella asiatica* (Gotu kola), which provide strong support for its touted benefits. With today's on-the-go, hectic and stressful lifestyle, *Centella asiatica*'s (Gotu kola) inclusion in a dietary supplement provides a multi-functional and safe choice for consumers.

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