



Tinofolin® is the extract by Sabinsa of *Tinospora cordifolia*, one of the extremely valued medicinal plants of Ayurveda, commonly called as "Guduchi".

Guduchi means one which protects the entire body and is attributed to its ability to impart youthfulness, vitality, and longevity.

In Ayurveda, *Tinospora cordifolia* is believed to have rejuvenating, tonic, anti-aging, longevity and aphrodisiac properties. Traditionally well known for its anti-stress activity. The plant has been validated for its anti-inflammatory, anti-diabetic, anti-arthritic, anti-stress, anti-allergic,

anti-malarial, immunomodulatory and hepatoprotective activities.

Enhances verbal learning and memory and logical memory (of immediate and short term type) compared to placebo in healthy volunteers.

Tinofolin® was evaluated for its ability to improve visual memory, logical memory, verbal memory, attention span and concentration in a placebo-controlled double-blind study involving 30 human volunteers of age 18-30 years for 21 days. The supplementation (500 mg/day) significantly improved verbal learning (placebo: -1.2 ± 1.9 & Tinofolin®: 6.9 ± 2.5 ; $p < 0.05$) and memory and logical memory (placebo: 5.1 ± 6.1 & Tinofolin®: 26.6 ± 6.7 ; $p < 0.05$) compared to control. There were no significant untoward effects reported during the trial. Hence, Tinofolin® at 500 mg per day enhances the verbal learning and memory and logical memory (of immediate and short term type) compared to placebo in healthy volunteers.

In another double-blind placebo-controlled study in 30 healthy human volunteers for 21 days, 500 mg of Tinofolin® showed no change in the hematological and biochemical parameters. Hence, Tinofolin® can be considered as safe for human consumption.

The mechanism of action is not yet clear and Sabinsa plans to conduct further studies to better understand them.

Here are the conclusions of their pre-study: *Tinospora cordifolia*, used for its immunomodulatory properties, could have improved cognition by increasing IL-1 synthesis. The second mechanism may be due to an increased synthesis of acetylcholine (an important neurotransmitter in memory learning) by supplementation with choline, which is an important active constituent of *Tinospora cordifolia*.

Efficacy of Tinospora cordifolia on Learning and Memory in Healthy Volunteers: A Double-Blind, Randomized, Placebo Controlled Study

Tinofolin®