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**Systematic review and meta-analysis of *Centella asiatica* (L.) Urb. on mood and cognitive function****Panupong Puttarak<sup>1</sup>, P Dilokthornsakul<sup>2</sup>, S Saokaew<sup>3</sup>, T Dhippayom<sup>2</sup>, C Kongkaew<sup>2</sup>, R Srumsiri<sup>2</sup>, A Chuthaputti<sup>5</sup> and N Chaiyakunapruk<sup>2,4</sup>**<sup>1</sup>Prince of Songkla University, Thailand<sup>2</sup>Naresuan University, Thailand<sup>3</sup>University of Phayao, Thailand<sup>4</sup>Monash University Malaysia, Malaysia<sup>5</sup>Ministry of Public Health, Thailand

**Statement of the Problem:** *Centella asiatica* (L.) Urb. has a long history as herb for brain tonic, mental disorders and memory-enhancing in Asia. A number of clinical studies of *C. asiatica* on mood and cognitive effect have been reported. However, no summarizes the overall evidence of *C. asiatica* on cognitive function.

**Methodology & Theoretical Orientation:** This study aims to determine the effects of *C. asiatica* on mood and cognitive function. International and Thai databases were searched for clinical studies investigating *C. asiatica*. Outcomes of interest were any measure on mood and cognitive function. Mean changes of the outcomes from baseline were compared by standardized mean difference.

**Findings:** Eleven randomized controlled trials involving 642 patients were included. *C. asiatica* could increase alert score [SMD: 0.71 (95%CI: 0.01 to 1.41); p = 0.046, I<sup>2</sup> = 30.5%] and decrease anger score at 1 hour after treatment [SMD: -0.81 (95%CI: -1.51 to -0.09); p = 0.026, I<sup>2</sup> = 36.6%]. Overall effects indicated no significant differences between *C. asiatica* and comparators on every cognitive domain except a comparison of combination products which could decrease time of problem solving in executive function domain [SMD: -0.77 (95%CI: -1.26 to -0.27); p = 0.002, I<sup>2</sup> = 0.0%] compared with a comparator. No study reported adverse effect of *C. asiatica*.

**Conclusion & Significance:** *C. asiatica* could increase alert and decrease anger score. However, *C. asiatica* has no clinical effect on cognitive function. Future well-designed clinical trials of standardized *C. asiatica* are still needed.

**Recent Publications**

1. Chomchan, R, Siripongvutikorn, S, Puttarak, P, Rattanapon, P. 2017. Influence of selenium bio-fortification on nutritional compositions, bioactive compounds content and anti-oxidative properties of young ricegrass (*Oryza sativa* L.). *Functional Foods in Health and Disease* 7(3): 195-209.
2. Chomchan, R, Siripongvutikorn, S, Puttarak, P. 2017. Selenium bio-fortification: an alternative to improve phytochemicals and bioactivities of plant foods. *Functional Foods in Health and Disease* 7(4): 263-279.
3. Anuracpreeda, P, Chawengkirttikul, R, Ngamniyom, A, Panyarachun, B, Puttarak, P, Koedrith, P, Intaratat N. 2017. The in vitro anthelmintic activity of the ethanol leaf extracts of *Terminalia catappa* L. on *Fasciola gigantica*. *Parasitology* 144(14): 1931-1942
4. Puttaraka, P, Pornpanyanukul, P, Meetam, T, Bunditanukul, K., Chaiyakunapruk, N. 2018. Efficacy and safety of *Vernonia cinerea* (L.) Less. for Smoking Cessation: A Systematic Review and Meta-analysis of randomized controlled trials. *Complementary Therapies in Medicine* 37: 37-42.
5. Chomchan, R, Puttarak, P, Brantner, A, Siripongvutikorn, S. 2018. Selenium-rich ricegrass juice improves antioxidant properties and nitric oxide inhibition in macrophage cells. *Antioxidants* 7, 57.

**Biography**

Panupong Puttarak received his Doctor of Pharmaceutical Science, Prince of Songkla University. 2008. His is a Ph. D (Doctor of Philosophy) in Pharmaceutical Sciences, from Faculty of Pharmaceutical Science, Prince of Songkla University. 2012. Later he started his employment as lecturer at department of Pharmacognosy and Pharmaceutical Botany, Prince of Songkla University, Hat-yai, Songkhla, Thailand. And his expertise fields: Phytochemistry, Standardization, Natural Products, Evidence-based medicine, Clinical pharmacy.

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