Research and Development of Standardized Extract of *Centella asiatica* ECa 233

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Abstract

Introduction: The fact that a large variation of triterpenoids, including asiaticoside, madecassoside, asiatic acid and madecassic acid, of *Centella asiatica* collecting from different parts of Thailand, or at different time of the year does exist and that might pose a problem on accountability of the herbal product for medical purpose. **Objective:** Thus, researchers at Faculty of Pharmaceutical Sciences, Chulalongkorn University, aimed to establish a standardized extract of *C. asiatica* containing consistent amount of its bioactive components. **Methods:** Step-by-step isolation guided by *in vivo* biological activities in animal models was conducted to identify the bioactive molecules. **Results:** ECa 233, defined as a white to off-white extracted powder of *C. asiatica* containing triterpenoid glycosides not less than 80% and the ratio between madecassoside and asiaticoside should be within 1.5 ± 0.5, was successfully established. Preclinical evaluation in different animal models demonstrated that orally given ECa 233 exerted gastro-protective effect as well as ameliorating effect on learning and memory deficit. In addition, anxiolytic and analgesic effects were also observed. Topical application of ECa 233 promoted wound healing process of both incision and burn wounds. In parallel with prominent pharmacological effects, ECa 233 demonstrated favorable safety profiles in terms of acute toxicity, sub-chronic toxicity as well as low potential to interact with other medications. Preliminary clinical trial in human clearly demonstrated positive effect of ECa 233 on minor aphthous ulcers. **Conclusion**: ECa 233 is a well-characterized standardized extract of *C. asiatica* that should be further developed into herbal products for medical use in human.

Keywords: Standardized extract, *Centella asiatica*, ECa 233, pharmacological activities, safety

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