ABSTRACT

*Centella asiatica* Extract Loaded BSA Nanoparticles Using the Organic and Conventional *C. asiatica* to Improve Bioavailability Activity and Drug Delivery System.

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*Centella asiatica* is Thai traditional herb which is very famous and also one of top five of Thailand Champion Herbal Products by the Department for Development of Thai Transitional and Alternative Medicine, Ministry of Public Health. *C. asiatica* crude extracts showed excellent potential *in vitro* but the problem was occurred *in vivo* due to their poor lipid solubility or improper molecular size, resulting in poor bioavailability. The nanoparticles were prepare by desolvation method using three different ratio *C. asiatica* crude chloroform extracts: BSA (1:2, 1:3, and 1:4). Then, it was tested with well agar diffusion method was used for evaluating antibacterial activity with different concentration (100, 200, and 300 µg/ml) against seven food borne pathogens, the antioxidant activity with two different assay as FRAP assay and DPPH assay to evaluate antioxidant activity. The entrapment efficiency, loading efficiency and solubility also use to test the efficiency of the nanoparticles. Next, it was test for release kinetic *in Vitro* during the whole period of 6 hours in both artificial gastric and intestinal juice. For the result can be seen that the different ratio of the concentration of *C. asiatica* to BSA (1:2, 1:3, and 1:4) and conventional and organic not significant effect to the bioavailability of *C. asiatica* extract-loaded BSA nanoparticles. \(p<0.05\) while the used of solvent extraction as Ethanol, Chloroform and hexane was significant different for the bioavailability of *C. asiatica* extract-loaded BSA nanoparticles, the highest was ethanol extraction solvent. \(p>0.05\) So, the most effective of economic and less consumption is the *C. aisatica* loaded BSA nanoparticles with 1:2 ratio and extract with ethanol because it used less of BSA to prepare and get more biological activity than chloroform and hexane extract.

**Keyword:** *Centella asiatica*, BSA-nano particles, Bioavailability, Organic