Extraction and Separation of asiatic acid, asiaticoside from Centella asiatica using Subcritical Water

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Centella asiatica is a tropical medicinal plant with a long history of therapeutic uses, dermal disorders, venous insufficiency and microangiopathy. The substances of therapeutic interest are the saponin-containing triterpene acids and their sugar esters. The four main triterpene chemicals in Centella asiatica are asiatic acid, madecassic acid, asiaticoside, and madecassoside. This study is to extract bioactive components, asiatic acid and asiaticoside, using subcritical water and separate them in particle size from Centella asiatica(L) Urb. Subcritical water is non-toxic and environment-friendly solvent, thus good potential alternative to the harmful organic solvents. In this extraction method, asiatic acid and asiaticoside can be separated through filtering according to the extracted particle size. Because evaporation process after the extraction and the removal of toxic residual solvent are unnecessary in the subcritical water extraction. Extraction yields of 7.84 mg/g (asiatic acid) and of 9.99 mg/g (asiaticoside) at 400 bar and 250 °C was achieved.