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Efficient approach for large isolation and purification of bioactive compounds from marine brown algae using centrifugal partition chromatography

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Marine brown algae are reported to include various bioactive compounds such as phlorotannins, chromanols and fucoxanthin, etc. However, their stable isolation and purification are not easy to be applicable as marine natural medicine. Centrifugal Partition Chromatography (CPC) is a liquid-liquid chromatography system to efficiently and largely isolate the bioactive compounds from a variety of marine algae and natural plants, etc. through a two phase solvent system composited with n-hexane:EtOAc:methanol:water or CHCl₃:methanol or ethanol:water solution. Phlorotannins such as dieckol, 6,6-bieckol, 2,7-phloroglucinol 6,6-bieckol, phyrogarlyol 6,6-bieckol, phlorofucofroeckol A and octaphlorethol A with antioxidant, anti-inflammatory and anti-diabetic effects are successfully isolated from *Ecklonia cava* (2:7:3:7, v/v), *Ishige okamura* (0.5:10:4:6, v/v) and *Ishige sinicola* (1:9:2:8, v/v). Sargachromanol E and K had anti-inflammatory and anti-cancer activities were obtained from *Sargassum siliquastrum* by CPC one step process (5:5:7:3, v/v). The bioactive compounds were purified by a one-step CPC system exhibited higher yields than previous studies to isolate them using convention processes. Therefore, we suggest that CPC system is the useful equipment for easy and simple isolation of bioactive compounds from marine brown algae.

Biography

Ji-Hyeok Lee is currently pursuing his PhD from Jeju National University in Republic of Korea. Currently he is working to find functional secondary metabolites from marine algae in Incheon National University.

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