**Preparative purification of bioactive marker compounds from natural products using centrifugal partition chromatography**

Chul Young Kim

College of Pharmacy, Hanyang University, Ansan, Kyeonggi-do 15588, Korea

A large quantity of pure compounds are needed for the testing of biological activities and standardization of natural herbal drugs. Generally, preparative isolation and separation of pure compounds from medicinal plants by some classical methods are tedious, requiring multiple chromatographic steps resulting lower recovery. Centrifugal partition chromatography (CPC), a support-free liquid-liquid partition chromatographic technique, and has been widely used in preparative separation of natural products. The advantage of the technology over HPLC is in its ease of scale up to manufacturing scale. Other advantages are a higher loading capacity, no product loss or degradation due to interactions with a solid stationary phase, the ability to load and fractionate crude samples and the ability for complete sample recovery by simply pumping out the liquid stationary phase.

Some of the more recent applications of the method to the separation of plant-derived natural products are described here. Crude plant extracts and semi-pure fractions can be chromatographed, with sample loads ranging from milligrams to grams. Aqueous and non-aqueous solvent systems are used and the separation of compounds with a wide range of polarities is possible. The technique is complementary to other chromatographic methods and is compatible with gradient systems. The results of our studies demonstrated that CPC is a useful tool for the preparative separation of various classes of biological active natural products.

**Key Words:** Centrifugal partition chromatography, Herbal medicines, Marker compounds, Purification