

## 12. COUNTER-CURRENT CHROMATOGRAPHY, A FAST METHOD FOR ISOLATION OF NATURAL COMPOUNDS

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One of the most crucial factors determining the safety and efficacy of any herbal medicine or natural product-based formulation is the quality of the raw material. The absence of readily available biomarkers (standards) is one of the hurdles which need to be overcome to develop robust and effective quality control protocols.

Extracts from medicinal plants are notoriously complex making the isolation and purification of the biomarkers a challenging and time-consuming process. Several chromatographic methods have been developed to isolate the biomarkers from herbal extracts for further studies.

Counter-current chromatography (CCC) is a liquid-liquid separation technique, which makes use of a support-free liquid stationary phase that is held in place by a rotating force field. In CCC, both the stationary and mobile phases are liquids while in other types of liquid chromatography, the stationary phases are solid. Thus through using CCC, decomposition and adsorption of compounds by the solid stationary phase do not occur making HPCCC ideally suited for the rapid isolation of natural products which is only one of many advantages HPCCC offers over conventional techniques [1, 2].

Isolation of biomarkers from Extra Virgin Olive Oil, *Aloe ferox* exudate, *Harpagophytum procumbens* tube extract and *Sceletium tortuosum* leaf extract by HPCCC are presenting.

### Reference:

- [1] Marston A, Hostettman K. 2006, Developments in the application of counter-current chromatography to plant analysis, *J. Chrom. A*, 1112, 181–194.
- [2] Ito Y. 2005, Golden rules and pitfalls in selecting optimum conditions for high-speed counter-current chromatography, *J. Chrom. A*, 1065, 145–168.