Conference abstract PO-55

**Analysis of *Citrullus colocynthis* Cucurbitacin Derivatives with HPLC-SPE-NMR**

**S. STURM, P. SCHNEIDER, C. SEGER, H. STUPPNER**

Institute of Pharmacy / Pharmacognosy, University of Innsbruck, Innrain 52, 6020 Innsbruck, Austria

E-mail: sonja.sturm@uibk.ac.at (S. Sturm)

Sci Pharm. 2009; 77: 254

Cucurbitacines are well know for their bioactivities and toxicity [1]. From the analytical point of view, this class of triterpene derivatives holds some challenges, due to their structural similarity and the presence of glycosides. In *Citrullus colocynthis*, the coloquint, a series of structurally related glucoside derivatives, the cucurbitacines E, I, J, K, and L are present. These are solely differentiated by subtle changes in the C-8 sidechain. With classical phytochemical approaches, this analyte class is well tackleable. However, the isolation of mg amounts needed for conventional NMR based structure characterization requires a remarkable investment of manpower, lab-time and consumables [2]. Hence, minimizing the analyte amount needed for identification (without loosing the required chemical information) is a major goal of modern phytochemistry. This goal has been recently realized by the HPLC-SPE-NMR platform allowing to obtain NMR information from μg amounts of analytes [3]. Combining the analytical HPLC based separation of the cucurbitacines with the trapping capabilities and the structural characterization power of the SPE-NMR device enabled the recording of all conventional 1D and 2D homo- and heteronuclear correlation spectra of *Citrullus* cucurbitacines from a crude methanolic extract of the plant material. The timeframe for recording a complete data set ranged between 18 and 24 hours and is comparable to offline data acquisition times of 4–5 mg sample material. Comparison of different SPE stationary phases showed the superior performance of the C-2 material and the GP (general purpose) resin, whereas C-8 and C-18 phases were of limited usability. Our data demonstrate, that HPLC-SPE-NMR is a valuable analytical platform with a broad applicability. The trap and release process of the online SPE device linking the HPLC and NMR instruments needs careful optimization of at least each analyte class investigated.


Presented at the 21st Scientific Congress of the Austrian Pharmaceutical Society
April 16th to April 18th 2009, Vienna, Austria.