B149 Cyanolipids from *Paullinia cupana* var. *sorbilis* (Mart.) Ducke

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Paullinia cupana var. sorbilis (Mart.) Ducke, commonly known as guaranà, is a plant native to the Amazonic forest, belonging to the Sapindaceae family (1). Seeds from this plant are known to contain high amounts of caffeine and are used to prepare a powder recommended as an energy reconstituent. Nevertheless, the seeds of many species of Sapindaceae are rich in oils that contain acylglycerols and an unusual class of plant lipids, the cyanolipids (2).

The chemical composition of the oil extracted from the seeds of *P. cupana* has been investigated with particular reference to the content of cyanolipids and data are reported in the present communication.

Cyanolipids amounted to 3% of the total oil from guaranà seeds. Generally, four types of cyanolipid structures, with fatty acids esterified to a mono- or di-hydroxy- nitrile moiety, have been reported as occurring in plants. ^{1}H and ^{13}C NMR analyses indicated that cyanolipids of the type I (1-cyano-2-hydroxymethylprop-2-ene-1-ol diesters) are present in the oil extract from *P. cupana*. Moreover, the GC analysis of the 4,4-dimethyloxazoline derivatives from those metabolites showed that *cis*-13-eicosenoic acid (paullinic acid) was the main fatty acid (38%) esterified to the nitrile group. Vaccenic acid (21%) and *cis*-15-eicosenoic acid (16%) were other abundant constituents. Identification of these fatty acids as the major components of the cyanolipid fraction from the guaranà seeds was also confirmed by GC/MS. To the best of our knowledge, only one paper has been previously published on the occurrence of cyanolipids in guaranà seed oils (3). Our data contribute to improve earlier findings.

References: 1. Judd, W.S. et al. (1999) Plant Systematics. A Phylogenetic Approach. Sinauer Assoc., Inc. USA **2.** Spitzer, V. (1996) Phytochem. 42: 1357. **3.** Lago, R.C.A., Simone, M.P.S.C. and Pinto, A.C., Acta Amazonica (2000) 30: 101.

B150 Scale-up of isolation of oxindole alkaloids from *Uncaria tomentosa* by HPLC using chromatographic model

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The species *Uncaria tomentosa* (Rubiaceae), known as Cat´s Claw, is a large woody vine indigenous to the Amazon rainforest. In herbal medicine, it is employed mainly for the treatment of immunological diseases and inflammations. Pentacyclic oxindole alkaloids present in the species have been considered biochemical markers and essential to standardize the commercial herbal medicines.

Semipreparative and preparative HPLC have been used to produce high purity compounds from natural sources. In this work we have applied chromatographic models for scale-up prediction aimed to optimize the isolation of the alkaloids isopteropodine, pteropodine, uncarine F, mytraphylline, isomytraphylline and speciophylline found in *U. tomentosa*.

From the ethanol extract of the stalk bark of *U. tomentosa* an alkaloid-rich fraction was obtained through a classic acid-base partition. The parameters related to retention and separation efficiency of the oxindole alkaloids in analytical reverse-phase HPLC were determined varying the stationary phase, modifier content and temperature. The runs were performed in LiChrospher RP-18, LiChrosorb RP-18 and Shimpack MRC-ODS columns using acetonitrile-water 54:46, 46:54 and 38:62, at 30, 50 and 80 °C. The effects of the cited variations on the parameters were significant.

A model based on statistical moment analysis was used as a tool to simulate chromatograms of the studied alkaloids. Uncarine F, mytraphylline and isopteropodine were separated using a Shimpack column, under different optimal conditions, 38:62 (30 °C), 38:62 (50 °C), and 50:50 acetonitrile-water (30 °C), respectively. The predicted and experimental separations were similar revealing the applicability of the methodology.

Acknowledgement: CAPES, FAPERJ, CNPq-PIBIC, FUJB.