

ARTEMISININ QUANTIFICATION IN PLANT MATERIAL BY HPTLC USING A DIONEX ACCELERATED SOLVENT EXTRACTOR (ASE®) DEVICE AND ARTEMETHER AS INTERNAL STANDARD

A. Benakis, Pharmacology, Geneva University, Switzerland
 X. Simonnet, M. Quennoz, MEDIPLANT, Conthey, Switzerland
 R. Locher, DIONEX (Switzerland) AG, Olten, Switzerland

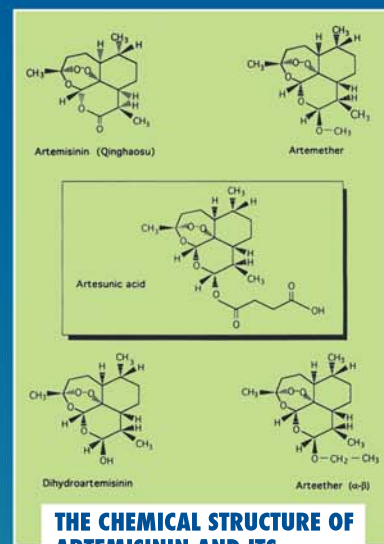
SUMMARY

The decision to harvest *Artemisia Annuua* leaves depends on their contents in Artemisinin. The determination must be achieved in a large number of samples and the results must be available rapidly in order to organize the collection of the leaves. An essential step of the analysis is the extraction procedure of the active compound Dionex: Accelerated Solvent Extraction (ASE®) in a 25 ml cell using 50 ml toluene with 5 gr of plant powder as well as 2 gr diatomaceous earth at 35°C and at 1000 psi pressure, 5 minute heat-up time. Artemether (200 ng) as internal standard is added to the plant material.

An aliquot of 1 µl of toluene solution is used for the TLC. The chromatographic conditions are already described in a previous publication (*Revue Suisse, Vitic. Arboric. Hortic.* 34 (3) 205-208, 2002). The quantification is performed using a CAMAG automatic scanning device. This procedure allows to improve the results by 15% as compared to traditional extraction procedure.



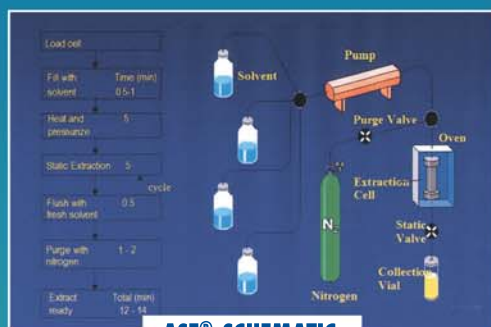
ARTEMISIA ANNUA PLANT



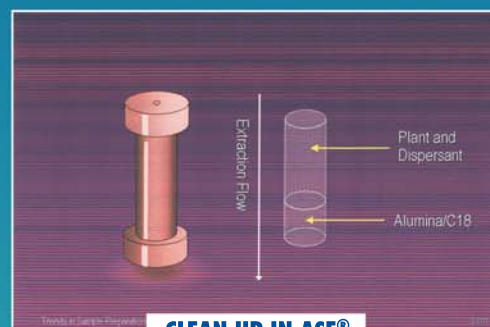
THE CHEMICAL STRUCTURE OF ARTEMISININ AND ITS SEMI-SYNTHETIC DERIVATIVES



ASE® 100 ACCELERATED SOLVENT EXTRACTOR



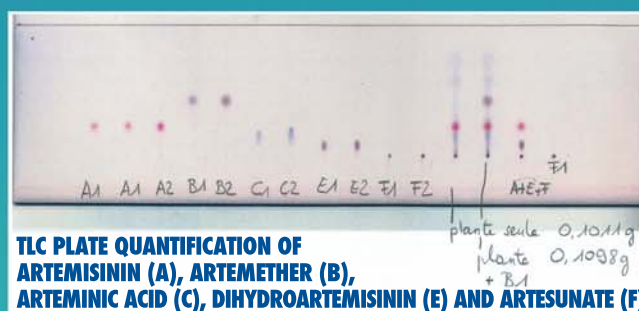
ASE® SCHEMATIC



CLEAN UP IN ASE®



CAMAG EQUIPMENT FOR QUANTIFICATION OF ARTEMISININ



TLC PLATE QUANTIFICATION OF ARTEMISININ (A), ARTEMETHER (B), ARTEMIC ACID (C), DIHYDROARTEMISININ (E) AND ARTESUNATE (F)

TABLE I

Comparison of the recovery figures of Artemisinin extract (%) from plant material according the extraction technique used

	Toluene Extraction % of Artemisinin	ASE® Extraction % of Artemisinin	Corrected figures using artemether as internal standard
Plant material N°1	1.17	1.20	1.59
Plant material N°2	1.05	1.10	1.51
Plant material N°3	0.24	0.33	0.67
Plant material N°4	0.60	0.46	0.75