ABSTRACT

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Title of diploma work: Development of capillary electromigration method for the determination of active compounds in silymarin I.

This diploma thesis deals with development of the method to determine flavonolignans in silymarine using micellar electrokinetic chromatography. The method was optimized by examining a number of experimental conditions, such as concentration of boric acid, concentration of sodium dodecyl sulfate, concentration of cyklodextrins, volume fraction of organic modifier and applied voltage on separation. Ideal conditions for separation were not found by using univariate optimization, so it was applied chemometric approach for the development of separation method. The separation was carried out in a fused silica capillary (internal diameter 50 μm, total length 47,2 cm and effective length 38,7 cm), later in bubble cell capillary (internal diameter 25 μm, internal diameter of bubble cell 125 μm, total length 48,5 cm and effective length 40 cm), with UV detection at 200 and 320 nm. The capillary temperature was maintained at 25°C. Optimal conditions for separation of the flavonolignans were: 178 mM SDS, 15 mM 2-HP-β-CD, 150 mM boric acid, 0% MeOH, pH 8,2 and applied voltage 26,30 kV. The method was successfully applied for separation of the flavonolignans in a medicinal preparation Flavobion.