Simultaneous Electrochemiluminescence Determination of Sinomenine, Cepharanthine and Tetrahydropalmatine in *Stephania epigaea* by Capillary Electrophoresis Coupled with Ultrasonic-Assisted Aqueous Two-Phase Extraction

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doi: 10.20964/2020.06.33

Received: 8 January 2020 / Accepted: 18 March 2020 / Published: 10 May 2020

Three alkaloids in *Stephania epigaea* were extracted using ultrasonic-assisted extraction in an aqueous two-phase system. Based on separation by CE with acetonitrile as an additive, this work first established a simple and sensitive CE-ECL method for simultaneous determination of sinomenine, cepharanthine and tetrahydropalmatine in *Stephania epigaea*. The experimental conditions were optimized. The three alkaloids had the highest extraction rates in the aqueous two-phase system compared with the other extraction solutions studied in this paper. Under the optimized experimental conditions, the three alkaloids were optimally separated within 10 min and displayed linear concentration ranges for sinomenine, cepharanthine and tetrahydropalmatine of 0.08-4.0 µg/mL, 0.08-4.0 µg/mL and 0.04-6.0 µg/mL, respectively. The detection limits of sinomenine, cepharanthine and tetrahydropalmatine (S/N=3) were 0.027, 0.024 and 0.013 µg/mL, respectively. This method was successfully applied for the determination of sinomenine, cepharanthine and tetrahydropalmatine in *Stephania epigaea* extracts with recoveries of 98.4%, 102.4% and 101.1%, respectively.

Keywords: Capillary electrophoresis; Electrochemiluminescence; Aqueous two-phase; Ultrasonic extraction; *Stephania epigaea*

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