Identification of phenolic compounds from pollen extracts using capillary electrophoresis–electrospray time-of-flight mass spectrometry

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Abstract In this work, a new, easy and rapid method of analyzing phenolic compounds in pollen extract, based on capillary electrophoresis coupled with electrospray ionization time-of-flight-mass spectrometry (CE–ESI TOF–MS), has been developed. A systematic investigation of separation parameters has been performed with respect to resolution, sensitivity, analysis time and peak shape. The electrophoretic parameters and electrospray conditions must be optimized to obtain reproducible analyses. Using this method, several important phenolic compounds such as acetinglucoside, 7-O-methylherbacetin-3-sophoroside, galloylglucose, quercetin-3-sophoroside, apigenin-6,8-di-C-glycoside, quercetin-3-rutinoside, genistein-7-O-β-D-glucoside, luteolin-7-O-glucoside, apigenin-7-O-glucoside and 2′,4′,6′-trihydroxy-3′-formyldihydrochalcone have been determined directly from pollen extract. The efficiency, the rapidity, the small amounts of sample required, and the high resolution of CE coupled with the sensitivity, the selectivity, the accurate masses and the true isotopic patterns obtained using TOF-MS point to the potential of this approach for identifying the phenolic compounds present in pollen.

Keywords Pollen . Phenolic compounds . Capillary electrophoresis . Electrospray ionization time-of-flight mass spectrometry· Sorbitol · Starch