

Title Identification of phenolic compounds in strawberries by liquid chromatography electrospray ionization mass spectroscopy

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Abstract

Strawberry (*Fragaria x ananassa* Duch.) fruits contain phenolic compounds that have antioxidant, anticancer, antiatherosclerotic and anti-neurodegenerative properties. Identification of food phenolics is necessary since their nature, size, solubility, degree and position of glycosylation and conjugation influence their absorption, distribution, metabolism and excretion in humans. Freeze-dried whole strawberry fruit powder and strawberry fruit extracts were analyzed by liquid chromatography electrospray ionization mass spectrometry (LC–ESI–MS) methods. Phenolics were identified as ellagic acid (EA), EA-glycosides, ellagitannins, gallotannins, anthocyanins, flavonols, flavanols and coumaroyl glycosides. The anthocyanidins were pelargonidin and cyanidin, found predominantly as their glucosides and rutinosides. The major flavonol aglycons were quercetin and kaempferol found as their glucuronides and glucosides. LC–ESI–MS/MS methods differentiated EA from quercetin conjugates since both aglycons have identical molecular weights (302 g/mol). The identification of strawberry phenolics is necessary to generate standardized materials for in vitro and in vivo studies and for the authentication of strawberry-based food products.