Solid Phase Extraction of Caffeine and Catechin Compounds from Green Tea by Molecular Imprinted Polymer

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This paper involves a feasibility study on using molecular imprinted polymers as the sorbent materials in solid phase extraction for caffeine and catechin compounds from green tea. caffeine as the templates, MAA as the monomer, EDMA as the crosslinker and AIBN as the initiator, were applied to this purpose. Solution of caffeine (0.2 mg/ml in methanol) was applied to the solid extraction cartridges following a load, wash and elute procedure with methanol, methanol-acetic acid (90/10, v/v) as the solvents, respectively. This solid phase extraction protocol was applied for extraction of caffeine and catechin compounds from green tea. Comparison between the results obtained with the MIP cartridges and a traditional C18 reversed-phase cartridge was made. It showed that the MIP-based sorbent on the solid phase extraction was comparable with that of C18 material. HPLC analysis using a C18 column (5 mm, 250×4.6 mm from Rstech corporation), methanol:water (40 : 60, v/v) as the mobile phase at a flow rate of 0.5 ml/min was applied for the quantitative determination.