Isolation of Caffeine and Catechin Compounds From Green Tea by Molecular-imprinted Solid Phase Extraction

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In this work, caffeine and some catechin compounds such as +C, EGC and EGCG were extracted from green tea using quercetin molecular imprinted polymers in solid-phase extraction. For synthesis of MIP, quercetin as the templates, MAA as the monomer, EGDMA as the crosslinker and AIBN as the initiator were used. For extraction of caffeine and catechin compounds from green tea, the solid-phase extractions of a load followed by wash and elution procedure were done with water, methanol and methanol:acetic acid=90:10 (vol.%) as the solvents, respectively. HPLC analysis (C18 column, 5 μm, 250×4.6 mm) with the mobile phase of methanol:water=40:60 (vol.%) at a flow rate of 0.5 ml/min was adopted for the quantitative determination. By solid-phase extraction, the resolutions of caffeine and some catechin compounds from green tea were increased. The quercetin-MIP had higher selectivity to +C compound.