Purification and Separation of Myricetin and Amentoflavone by Solid-Phase Extraction

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Solid-phase extraction (SPE) is used widely for the preconcentration and clean-up of analytical samples, as well as the purification of various chemicals. SPE was used to separation and purity two flavones, myricetin and amentoflavone, from Chamaecyparis obtusa. C18, silica and amino silica, MCM-41 and amino MCM-41, respectively, which has a regular structure, was applied as sorbents to increase the purification efficiency. The adsorption isotherm confirmed amino MCM-41 to have the higher absorption ability. The best SPE condition was as follows: sorbent, amino MCM-41, washing and elution step solvent of 2 mL water and 2 mL methanol, respectively. HPLC-UV was used to detect the tow target compounds. Under optimal conditions, 4.933 μg g-1 of myricetin and 5.911 μg g-1 of amentoflavone were obtained from Chamaecyparis obtuse. The adsorption isotherms of tow flavones on amino MCM-41. The adsorption equilibrium data of the tow flavones were examined using three different models and the competitive Langmuir-Freundlich was the best. The regression coefficient (r2) of the competitive Langmuir-Freundlich of myricetin and amentoflavone was 0.9597 and 0.9521, respectively.