

Properties of molecularly imprinted polymers synthesized by various functional monomers

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Molecularly imprinted polymers (MIPs) are a new kind of tailor-made material, which have high selectivity for their target molecules. Therefore, in this study, MIPs were synthesized by using various functional monomers of methacrylic acid, acrylic acid and acryl amide, respectively. To synthesize all the MIPs UV-polymerization technique was adopted, and theophylline, polyester acrylate and 1-hydroxycyclohexyl acetophenone were used as a target molecule, a crosslinker and a photoinitiator, respectively. Extraction of theophylline molecules from the MIPs was performed using the solution of chloroform/acetic acid (90/10 v/v) until no more theophylline was detected. Binding performances of MIPs and non-imprinted polymers (NIPs) were compared. Selectivity analyses of MIPs were carried out using a solution with theophylline and caffeine. All the binding tests for the MIPs were performed by checking the template concentration of the solution using a UV-visible spectrophotometer. The MIPs showed good rebinding characteristics and selectivity.