

Synthesis of molecularly imprinted polymers for detection glucose oxidase

Molecularly imprinted polymers (MIPs) are highly cross-linked polymers containing binding sites that can selectively interact with template molecules. The binding sites are characterized by specificity, selectivity and, as a result, the ability to selectively interact with template molecules. The synthesis of MIPs is based on the formation of a complex between a template molecule and functional monomers through covalent or non-covalent interactions. The step of removing the template molecules from the formed polymer matrix leads to the formation of binding sites.

Successful imprinting of macromolecules, including proteins, viruses and DNA fragments, remains a challenge because macromolecular structures have a complex structure and form different conformations sensitive to pH of the medium, ionic strength, temperature and the presence of organic solvents. In this work, we synthesized polyaniline-based MIPs using glucose oxidase (GoX) as a template molecule. The use of CdSe/ZnS quantum dots (QDs) of two types as luminescent substrates: core-shell and doped QDs made it possible to quantify GoX and establish the analytical characteristics of MIP.