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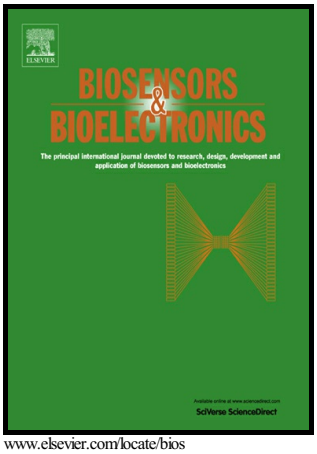

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Abstract

Molecularly imprinted polymers (MIPs)-based electrochemical biosensors (ECBSs) have many advantages from MIPs and ECBSs, such as high selectivity and sensitivity, chemical/mechanical stability, reusability, low limit of detection, facile preparation and low cost. MIPs-based ECBSs attract much attention in medical diagnose, biological analysis, environmental monitoring, food safety evaluation, etc. Due to the capacity of highly specific recognition for target biomolecules, MIPs-based ECBSs have been smartly designed and extensively used for electrochemical sensing applications in recent years, exhibiting obvious superiority over other analytical techniques. In this review, firstly we systematically summarize the recent advances of MIPs-based ECBSs reported in recent years, referring to the preparation, structures and components of sensing systems. Secondly, we highlight the sensing applications for various significant biomolecules (proteins, antibiotics, pesticide, neurotransmitter, hormone, etc.), and demonstrate the sensing mechanism and detection performance. Finally, the rational summaries, present challenges and future prospects in the field of MIPs-based ECBSs have been discussed reasonably.

Keywords: molecularly imprinted polymers; electrochemical sensors; biosensors; biomolecules