Chemically modified electrodes based on polyazulene for heavy metals detection

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The electrochemical methods for detection of trace heavy metals became very important in the last years since these methods offer several advantages, including remarkable sensitivity, inherent miniaturization and portability [1]. Electrochemical analysis using chemically modified electrodes is a promising method for metals determination at trace levels [2]. The conducting polymers have attracted attention due to their wide fundamental interest and potential industrial applications. Being formed by fusing a seven-membered ring with a five-membered ring, the azulene shows low ionization energy and a high electron affinity, being a very interesting building block among the monomers for the synthesis of advanced materials. Here we present new complexing polymer-coated electrodes which have been synthesized by oxidative electropolymerization of vinyl-azulen substituted with heterocycles complexing groups (Fig. 1) in acetonitrile solutions. The novel electrodes were used for the simultaneous electrochemical detection of heavy metal ions by means of the chemical preconcentration-anodic stripping technique.

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