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Pd, PdSn, PdBi, and PdBiSn nanostructured thin films for the electro-oxidation of ethanol in alkaline media

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ABSTRACT:

Pd, PdSn, PdBi and PdBiSn nanostructured thin films were prepared on Au substrate using the electrochemical atomic layer deposition technique. The activity of the nanostructured thin films towards the electro-oxidation of ethanol was tested in alkaline media using electrochemical methods. Scanning electron microscopy results showed that the nanoparticles were evenly distributed on the surface, while the elemental analysis confirmed the presence of all elements on the prepared materials. Cyclic voltammetry studies revealed that the addition of Sn and Bi on Pd improved the activity of Pd and that the ternary nanostructured catalyst was more active towards the oxidation of ethanol than the binary catalysts.