عنوان مقاله:

Enhanced electrocatalytic oxidation of methanol at rGO-NiO nanocomposite modified carbon ceramic electrode in alkaline medium

محل انتشار:

یازدهمین سمینار سالانه الکتروشیمی ایران (سال: 1394)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Hossein Shirdel - *Analytical Chemistry Research Lab., Faculty of Basic Sciences, Azarbaijan Shahid Madani University, Tabriz, Iran*

Habib Razmi - *Analytical Chemistry Research Lab., Faculty of Basic Sciences, Azarbaijan Shahid Madani University, Tabriz, Iran*

Rahim Mohammad-Rezaei - *Analytical Chemistry Research Lab., Faculty of Basic Sciences, Azarbaijan Shahid Madani University, Tabriz, Iran*

خلاصه مقاله:

In this work enhanced electrocatalytic oxidation of methanol at reduced graphene oxide-nickel oxide nanocomposite modified carbon ceramic electrode (rGO-NiO/CCE) was studied byelectrochemical techniques in alkaline medium. Due to some unique properties of carbon ceramic electrode (CCE) involving high porosity, renewable surface, good conductivity, and economy it was used as a substrate in this study (1). The composition of reduced graphene oxide withexcellent conductivity and high surface to volume ratio, and NiO results a new nanocomposite with brilliant performance for electrocatalytic applications. The mechanism of electrocatalytic oxidation of methanol on rGO-NiO/CCE was investigated and proposed to be done by reactionwith NiOOH and also direct electro-oxidation reaction. The effects of scan rate and methanolconcentration on the anodic peak heights as well as current decay measurements were studied. Cyclic voltammetry studies demonstrated that the rGO-NiO/CCE exhibits much higherelectrocatalytic activity and stability rather than CCE, rGO/CCE, NiO/CCE in methanol oxidation.

کلمات کلیدی:

reduced graphene oxide, nickel oxide, methanol oxidation, carbon ceramic electrode