Electrochemical Determination of Hg(II) Ions Based on Biosynthesized Spherical Activated Carbon from Potato Starch

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The method, where carbonization of potato starch with high temperature is followed by hydrothermal process without catalyst, is employed to fabricate the well-defined and individual carbon microspheres (designated as MC). The method, such as FTIR, SEM, BET, Raman and XRD, are used to detect the properties of the synthesized samples. Next, we show that a noble sensor with high sensitivity and selectivity for Hg (II) with a glassy carbon electrode which is decorated by MC, which behaves as platform with enhanced sensing. The processes of transferring the electron and behaviour of detecting the Hg (II) are greatly facilitated by advised sensor, which leads to the sensor more selective and sensitive. The limit of detection is about 5 ppm, which is much lower than that of WHO (which is short for World Health Organization). This method can inhibit the disturbance of the Zn^{2+} , Cu^{2+} and Fe^{3+} ions when the mercury is analysed.

Keywords: Electrochemical sensor; Hg ions; Carbon microspheres; Biosynthesis; Photo starch

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