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An ultrasensitive electrochemiluminescence sensor based on reduced graphene oxide-copper sulfide composite coupled with capillary electrophoresis for determination of amlodipine besylate in mice plasma

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Abstract

A new electrochemiluminescence (ECL) sensor based on reduced graphene oxide-copper sulfide (rGO-CuS) composite coupled with capillary electrophoresis (CE) was constructed for the ultrasensitive detection of amlodipine besylate (AML) for the first time. In this work, rGO-CuS composite was synthesized by one-pot hydrothermal method and used for electrode modification. The electrochemical and ECL behaviors of the sensor were investigated. More than 5-fold enhance in ECL intensity was observed after modified with rGO-CuS composite. The results can be ascribed to the presence of rGO-CuS composite on the electrode surface that facilitates the electron transfer rate between the electroactive center of $\text{Ru}(\text{bpy})_3^{2+}$ and the electrode. The ECL sensor was coupled with CE to improve the selectivity and the

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