A Novel Electrochemiluminescence Modified Glass Carbon Electrode Based on Carboxylated Acetylene Black / $\text{Ru}(\text{bpy})_3^{2+}$ / Nafion for Detection of Isoniazid

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A novel, rapid, and facile electrochemiluminescence sensor which based on carboxylated acetylene black / $\text{Ru}(\text{bpy})_3^{2+}$ / nafion modified glass carbon electrode (CAB/ $\text{Ru}(\text{bpy})_3^{2+}$ /NAF/GCE) was developed for detecting isoniazid (INH). The CAB/ $\text{Ru}(\text{bpy})_3^{2+}$ /NAF/GCE expresses an efficient electrochemiluminescence response for INH, because of the brilliant luminous efficiency of $\text{Ru}(\text{bpy})_3^{2+}$ and admirable electronic transmission of acetylene black. The electrochemiluminescence intensity was quenched significantly with addition of INH. Under the optimal conditions, the sensor for the detection of isoniazid exhibits a wide linear range of $1.0 \times 10^{-6} \sim 1.0 \times 10^{-3} \text{ mol} \cdot \text{L}^{-1}$ with the detection limit of $5.0 \times 10^{-7} \text{ mol} \cdot \text{L}^{-1}$. The sensor is expected to be a simple and convenient method for the determination of INH in pharmaceutical samples .

Keywords: ectrochemiluminescence, acetylene black, $\text{Ru}(\text{bpy})_3^{2+}$, isoniazid

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