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Abstract
Prussian Blue(PB) is a mixed-valence compound. When it to used modify the carbon paste electrode it possesses the good mediator property for hydrogen peroxide reduction and can decrease the detection potential. The modified CP minielectrode had the best current response at -400 mV. As compared with the unmodified CP minielectrode, the modified CP minielectrode could increase 5 times of current response. If the PB/CP/ GOD+GA minielectrode was applied to the biosensor at -400 mV, it could avoid the interference of interferant for the organic body fluid, such as Vit.C, Uric Acid and Acetaminophen. The PB/CP minielectrode could have higher and stable current response in the electrolyte solution at pH 3.05 and when the weight ratio of PB to carbon paste was 3 to 7 the higher current response could be obtained. For PB/CP/GOD+GA/PPD minielectrode in pH 7.0 PBS buffer, the operating potential was -400 mV and the temperature was 30℃; when the glucose was detected, a good linearity was from 0.2 to 1.0 mM(the relative coefficient is 0.9996) for this biosensor. Lifetime was 11 days.Nanoscaled Prussian blue had the best current response at -400 mV. linearity was from 20 μM to 1.28 mM and detection limit was below 0.02 mM. When the pH value was 7.0 of PBS solution,it could have higher and stable current response. And it could avoid the interference of interferant . Lifetime was 19 days.

A study was conducted to use the carbon paste (CP) which was modified by the copper (II) hexacyanoferrate(II), CuHCF to fabricate a minielectrode. As compared with the unmodified CP minielectrode, the modified CP minielectrode could increase 58 times of current response. Because the electron hopping property of CuHCF possesses the good mediator property for hydrogen peroxide reduction and can decrease the detection potential. The modified CP minielectrode had the best current response at -400 mV. The CuHCF/CP minielectrode could have higher and stable current response in the electrolyte solution at pH 7.0 and when the weight ratio of CuHCF to carbon paste was 4 to 6, even if the total mixed weight was only about 3.5 mg, the higher current response could be obtained. For CuHCF/CP/GOD+GA/PPD minielectrode in pH 7.0 PBS buffer, the operating potential was -400 mV and the temperature was 30℃; when the glucose was detected, a good linearity was from 0.4 to 2.8 mM(the relative coefficient is 0.99) and the detection limit was below 0.02 mM for this biosensor. Lifetime was 8 days. If the CuHCF/CP/GOD+GA /PPD minielectrode was applied to the biosensor at -300 mV, it could avoid the interference of interferant for the organic body fluid, such as Vit.C, Uric Acid and Acetaminophen etc.Nanoscaled Copper hexacyanoferrat had the best current response at -400 mV. linearity was from 20 μM to 1.28 mM and detection limit was below 6.4 μM. When the pH value was 7.0 of PBS solution,it could have

higher and stable current response. And it could avoid the interference of interferant . Lifetime was 24 days. Finally the mass change of the o-PD was measured by the EQCM.
Advisory Committee Liang-Chien Chang - advisor

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