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青蒿素及其衍生物电化学性质的研究**I.** 青蒿素在汞电极上的电化学还原

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摘要
青蒿素及其衍生物代表着一类新型抗疟药。青蒿素分子中过氧基与抗疟活性密切相关。本文采用多种电化学方法研究了青蒿素分子中过氧基在Hg电极上的还原, 还原电位在0.0V(vs.Ag/AgCl)附近, 电极过程为不可逆还原, 反应电子数n=2, 半波电位E1/2=0.012V, 电子转移系数α=0.66, 表观标准电极反应速率常数ks'=6.34×10^-^6cm/s, 扩散系数D=4.3×10^-^6cm^2/s。反应产物在电极表面具有吸附性, 文中提出了可能的电化学反应机理。

关键词 反应机理 还原 扩散系数 青蒿素 反应速度常数 汞电极

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Study on the electrochemical behaviors of artemisinin and its derivatives I. Reduction of artemisinin at Hg electrode

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Abstract Artemisinin and its derivatives represent an important new class antimalarial drug. The peroxide moiety of artemisinin is indispensable for its antimalarial activity. By various electroanalytical methods, the reduction of artemisinin took place at approximately 0.0V (vs.Ag/AgCl) by a two-electron transfer, half wave potential E1/2=0.012mV, the charge transfer coefficient α=0.66, apparent standard rate constant ks'=6.34×10^-^6cm/s, diffusion coefficient D=4.3×10^-^6cm^2/s, the reduced product could be adsorbed on electrode surface. The mechanism of reduction was suggested.

Key words REACTION MECHANISM REDUCTION DIFFUSION COEFFICIENTS ARTEANNUIN REACTION RATE CONSTANT MERCURY ELECTRODE

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