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胶束微环境下光解苯半醌负离子基的**CIDEP**研究

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摘要 用高时间分辨电子自旋共振(TRESR)波谱仪, 研究对苯醌(PBQ)
在不同的介质中光解苯半醌自由基的化学诱导动态电子自旋极化(CIDEP)。实验结果指出,
在乙二醇溶液中得到苯半醌自由基(PBQH)和以碳为中心的自由基R(OH)2。在乙二醇/水溶液中,
得到以PBQH的六条峰为主的谱线图, 然后在该体系中随着加入表面活性剂TX-100, AOT的浓度增加,
苯半醌负离子基(PBQ^-)的谱线强度增加, 而PBQH的谱线减弱直至消失。本文从自由基所处微环境性质出发,
讨论其极化传递机理和有关物理化学性质。

关键词 胶束 乙二醇 苯醌 电子自旋共振 极化 半醌 光解 自由基

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The CIDEP study of photolyzed p-benzosemiquinone anion-radical in micellar microenvironment

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Abstract The CIDEP spectra of photolyzed p-benzosemiquinone radical in different media have been studied experimentally with the highly time resolved ESR spectrometer. In p-benzoquinone solution with ethylene glycol as solvent, emission lines from PBQH and R(OH)2 were obtained. With ethylene glycol and water mixture as solvent, the spectrum mainly contained six lines from PBQH. With the addition of some surfactants (TX-100 and AOT) and increase of their concentration, the strength of PBOH lines decreased gradually to such an extent as to disappear at last. At the same time, lines from PBQ appeared in the spectrum and increased gradually. On the basis of special properties of the microenvironment in which radicals lied, a polarization transference mechanism and some related physical chemical properties were discussed to explain these experimental results.

Key words MICELLE ETHANEDIOL BENZOQUINONE ELECTRON SPIN RESONANCE POLARIZATION SEMIQUINONE PHOTOLYSIS FREE RADICALS

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