

## ESR方法检测竹红菌素的半醌负离子自由基

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### 摘要

从顺磁共振波谱检测到通过竹红菌素的光诱导还原和基态竹红菌素跟脂肪胺的电子转移两条途径所得到的自由基信号,并由电化学还原得到同一自由基,确认它为半醌负离子自由基。竹红菌素溶液中加入芳香胺观察不到ESR信号。它的3,10位上与醌基相邻近的羟基离解以后,无论在基态还是在激发态都观察不到ESR信号。此外,还从吸收光谱观察到半醌负离子自由基吸收以及竹红菌素跟脂肪胺之间的相互作用。

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## Detection of semiquinone radical anions of hypocrellins by ESR spectra

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**Abstract** The ESR signals with hyperfine structure were detected in the photolysis of Hypocrellin A or B and in the electron transfer interaction between the ground state of Hypocrellin and aliphatic amines in solns. The same signals could also be detected in the solns. of electrochem. reduction of Hypocrellins. It confirmed that signals arose from the semiquinone radical anion of Hypocrellins. No ESR signal could be detected in solution for interaction between and ground state of Hypocrellins with aromatic amines. The hydroxyl group adjacent to the quinonoid carbonyl in perylene quinone nucleus may stabilize the semiquinone radical anion. In case the proton in hydroxyl group dissociated completely no ESR signal could be observed either in the ground state or in the excited state in our experiments In addition, the absorption spectra of semiquinone radical and the interactions between Hypocrellins with aliphatic amines have been studied in this paper.

**Key words** [ELECTRON SPIN RESONANCE SPECTROMETRY](#) [REDUCTION](#) [ELECTROCHEMISTRY](#) [SEMIQUINONE](#) [PHOTOINDUCED](#) [HYPOCRELLIN](#) [FREE RADICALS](#)

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