

研究报告

兽药恩诺沙星(enrofloxacin)的水解特性

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摘要 研究了恩诺沙星在不同pH、不同光照及不同微生物条件下的水解, 为其生态风险评价提供依据. 结果表明, 恩诺沙星的水解产物中没有环丙沙星; 50 ℃时, 避光5 d后恩诺沙星在pH 1~10缓冲液中的水解都小于10%, 表明恩诺沙星在恒温避光下的水解半衰期将超过1年, 同时溶液pH值的变化对恩诺沙星的水解速率无显著影响; 恩诺沙星在天然水中的降解与光照有关, 在室外自然光照条件下恩诺沙星降解很快, 3 d后水中已经检测不出恩诺沙星. 在室内自然光下, 恩诺沙星降解较慢, 在初始浓度分别为0.05、0.2、1.0 mg·L⁻¹条件下, 31 d试验期内分别降解了48%、72%和65%; 在避光条件下, 恩诺沙星非常稳定, 不易降解. 在不同初始浓度下, 微生物对恩诺沙星的水解无显著影响. 由于恩诺沙星在室外自然光照条件下会迅速降解, 因此不会对水环境构成直接的危害, 但不能忽视其潜在的生态风险.

关键词 [恩诺沙星](#) [水解](#)

分类号

Hydrolysis characteristics of enrofloxacin

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Abstract

By the method of high-performance liquid chromatography (HPLC), this paper studied the hydrolysis characteristics of enrofloxacin under conditions of different pH, light, and microorganism to assess its ecological risk. The results showed that no ciprofloxacin was found in the hydrolyzed products of enrofloxacin. Under the conditions of 50 ℃ and pH 1~10, the hydrolyzation rate of enrofloxacin was less than 10% within 5 days. The half life of enrofloxacin was longer than one year at normal temperature and in dark, and buffer's pH had no significant effects on the hydrolysis of enrofloxacin. The degradation of enrofloxacin in natural water was strongly affected by light. Under outdoor natural light condition, enrofloxacin degraded quickly and was not examined after 3 days; while under indoor natural light condition, it degraded slowly, with the degradation rate being 48%, 72% and 65% after 31 days when its initial concentration in water was 0.05, 0.2 and 1.0 mg·L⁻¹, respectively. Enrofloxacin was very steady in dark, and microorganisms had no significant effects on its degradation. Owing its rapid degradation under outdoor natural light condition, enrofloxacin might have no direct harmfulness to aquatic ecosystem, but its potential ecological risk should not be neglected once entering into aquatic ecosystem, especially in bottom mud.

Key words [Enrofloxacin](#) [Hydrolysis](#)

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