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络合萃取法处理模拟金刚烷胺制药废水

Treatment of simulated amantadine pharmaceutical wastewater by complexation extraction

关键词：金刚烷胺 制药废水 络合萃取 反萃取 废水处理

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作 者 单位

宋永会 1. 中国环境科学研究院环境基准与风险评估国家重点实验室, 北京 100012;2. 中国环境科学研究院城市水环境科技创新基地, 北京 100012

魏 健 1. 中国环境科学研究院环境基准与风险评估国家重点实验室, 北京 100012;2. 中国环境科学研究院城市水环境科技创新基地, 北京 100012

马印臣 1. 中国环境科学研究院环境基准与风险评估国家重点实验室, 北京 100012;2. 中国环境科学研究院城市水环境科技创新基地, 北京 100012

曾 萍 1. 中国环境科学研究院环境基准与风险评估国家重点实验室, 北京 100012;2. 中国环境科学研究院城市水环境科技创新基地, 北京 100012

Julie MENDRET 法国蒙彼利埃大学欧洲膜技术研究所, 蒙彼利埃(法国) 34095

摘要：采用络合萃取法处理模拟金刚烷胺制药废水，比较了苯、CCl_4和P_{204}等11种萃取剂对水溶液中金刚烷胺的萃取效果，考察了溶液初始pH值、稀释剂的类型、萃取剂与稀释剂的配比和油/水比等因素对萃取效率的影响，并对萃取液进行了反萃取分离研究.结果表明，在水溶液中金刚烷胺浓度为1000 mg·L^{-1}，溶液初始pH值为8.0~10.0，油/水比为1：1的条件下，采用P_{204}与正辛醇体积比3：2的复配萃取剂进行萃取分离，金刚烷胺萃取率可以达到99.0%以上，当金刚烷胺浓度增加至10.0 g·L^{-1}时，萃取率仍可以保持在97.0%以上；以2.0 mol·L^{-1}的HCl溶液为反萃取剂，按照油/水比为1：1可将51.1%的金刚烷胺从萃取剂中反萃分离.

Abstract：Complexation extraction was used to treat the simulated amantadine pharmaceutical wastewater. The extraction efficiencies of amantadine with 11 different extractants including benzene, CCl_4 and P_{204} were compared. The influences of initial pH value, types of diluent, the proportion of extractant and the ratio of oil-water on amantadine extraction efficiency were investigated. Furthermore, the stripping efficiency was also studied. The results showed that the extraction efficiency of amantadine was above 99.0% under the conditions of amantadine 1000.0 mg·L^{-1}, initial pH value 8.0 to 10.0, oil-water ratio 1:1 by P_{204} dissolved in octanol with the volume ratio of 3:2. Even the amantadine concentration was as high as 10.0 g·L^{-1}, the extraction efficiency was still kept above 97.0%. In the process of back-Extraction, the solution of HCl with a concentration of 2.0 mol·L^{-1} was used as stripping agent, and with the phase ratio of 1:1, about 51.1% of amantadine was stripped from the loaded solvent.

Key words：amantadine pharmaceutical wastewater complexation extraction back-Extraction wastewater treatment

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