

分离工程

去乙酰头孢菌素C的分离纯化

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摘要

利用粒径分布为0.27~1.70 mm的煤质颗粒活性炭为吸附剂, 采用固定床方式分离废弃液中的去乙酰头孢菌素C (DCPC)。以8% (体积) 乙醇水溶液洗脱, 得到DCPC纯度大于85%的洗脱液, 收率为60%~65%。洗脱液经过纳滤膜浓缩后, 通过阴离子交换树脂Amberlite IRA67吸附, 以0.5 mol·L⁻¹醋酸钠缓冲液 (pH6.3) 洗脱, 得到DCPC纯度96%、含量大于30 g·L⁻¹的去乙酰头孢菌素C的钠盐溶液, 收率在90%~95%。加入丙酮, 可得到去乙酰头孢菌素C钠盐结晶。以含有异丙醇的强碱溶液浸泡洗涤洗脱后的煤质颗粒活性炭, 再用酸溶液中和冲洗, 可恢复其吸附能力。

关键词

[煤质颗粒活性炭](#) [去乙酰头孢菌素C \(DCPC\)](#) [分离纯化](#) [纳滤膜](#)

分类号

Separation and purification of deacetyl cephalosporin C

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Abstract

Coal granular activated carbon with particle size distribution from 0.27 mm to 1.70 mm was used as adsorbent in a fixed-bed to separate deacetyl cephalosporin C (DCPC) from the waste drainage. The adsorbed DCPC on the carbon was eluted with 8% (vol) ethanol aqueous solution, and the obtained eluate contained DCPC in a yield of 60%~65% with a purity higher than 85%. After being further condensed through nanofilter membrane, the eluate was allowed to pass through anion-exchange resin Amberlite IRA67 on which DCPC was adsorbed. Desorption with 0.5 mol·L⁻¹ sodium acetate buffer solution (pH6.3), DCPC was obtained as sodium salt solution in a yield of 90%~95% with 96% purity and the concentration was higher than 30 g·L⁻¹. DCPC sodium salt was isolated by crystallization through adding acetone to the eluate. The adsorption capacity of the used coal granular activated carbon could be restored by saturation with alkali solution containing isopropanol and then neutralization with acidic solution.

Key words

[coal granular activated carbon](#) [deacetyl cephalosporin C \(DCPC\)](#) [separation and purification](#) [nanofilter membrane](#)

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