CMC Metal Binding 관련자료

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CMC의 금속이온 결합기능(1)

Ref. 첨부논문 1 : *Barakat, M.A., 2008. Removal of Cu(II), Ni(II), and Cr(III) ions from wastewater using complexation–ultrafiltration technique. J. Environ. Sci. Technol. 1 (3), 151–156.*

(요약) CMC를 폐수처리시설의 ultrafiltration에 함께 적용 시, metal binding 효과로 중금속 제거에 효과적임.

#. 금속이온 용액 : Cu(II), Ni(II), and Cr(III), 1000 mg/l
#. CMC : viscosity 25-75 mPa.s

결과 Data

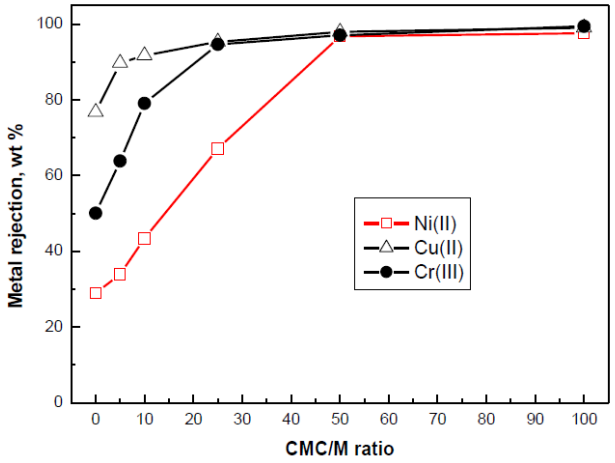

Figure 2. Effect of CMC concentration on the rejection of Ni(II), Cu(II) and Cr(III) from aqueous solutions using polyethersulfon ultrafiltration membrane. (pH = 7, p = 1 bar)

→ CMC 농도가 증가할수록 금속결합 강화

→ 이는 금속의 hydroxyl 복합체가 CMC 분자와 뭉치면서 큰 입자를 형성하기 때문.

→ CMC/M 비율이 50일 때 최대의 Metal rejection 발생

CMC의 금속이온 결합기능(2)

Ref. 첨부논문 2 : *C.Govindarajan1, S. Ramasubramaniam1, T.Gomathi2, and P.N. Sudha. Studies on adsorption behavior of Cadmium onto nanochitosancarboxymethyl. Archives of Applied Science Research, 2011, 3 (5):572-580 cellulose blend*

(요약) 수용액에서 nanochitosan(NC)/carboxymethyl cellulose(CMC) blend를 이용 시, 카드뮴이온의 흡착력을 높여 카드뮴이온 제거에 효과적임

#. 금속이온 용액 : Cd(II) 200mg/L
#. NC / CMC blend : weight ratio 30:1, CMC 5%

결과 Data

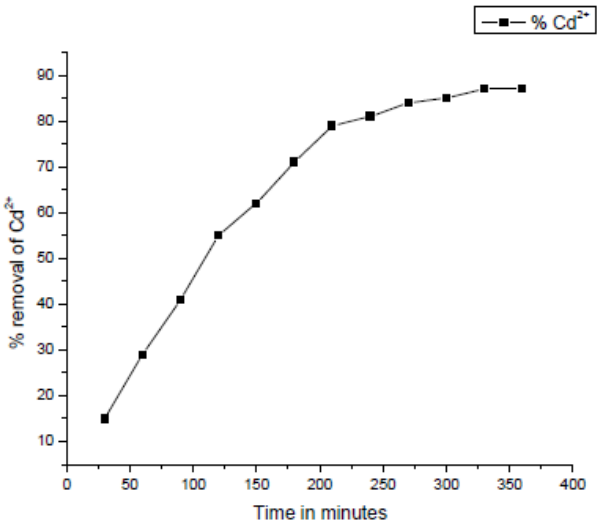

Figure 2: Percentage removal of cadmium ion using nanochitosan/carboxymethyl cellulose blend at different time intervals

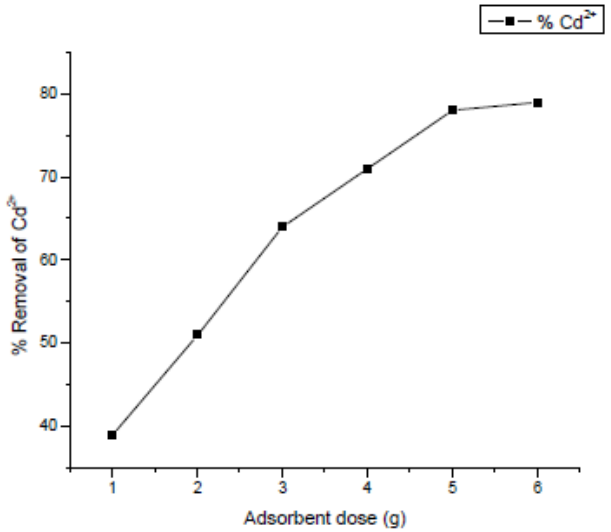

Figure 3: Percentage removal of cadmium ion using nanochitosan/carboxymethyl cellulose blend at adsorbent dose

CMC의 금속이온 결합기능(3)

Ref. 첨부논문 3 : *P. Sathiyanarayanan and R. Joel Karunakaran. Batch adsorptive removal of copper (II) using carboxymethyl cellulose (CMC), polyethylene glycol (PEG) and montmorillonite (MMT) clay ternary blend. Journal of Chemical and Pharmaceutical Research, 2015, 7(4):1099-1108*

(요약) CMC, Polyethylene glycol and Montmorillonite clay를 혼합한 polymer blending으로 수용액에서 Copper(II) 제거효과 확인

결과 Data

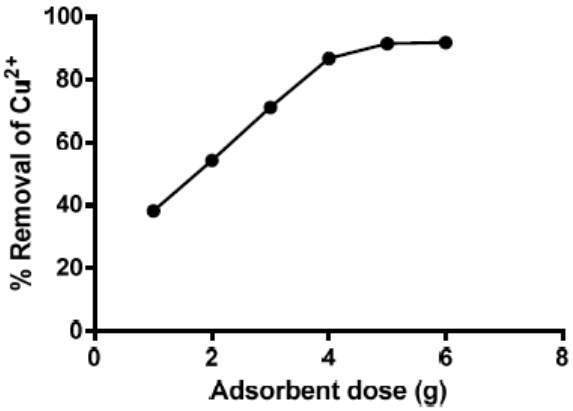

Figure 5: Effect of adsorbent dose of CMC/PEG/MMC – GLU (1:1:1)

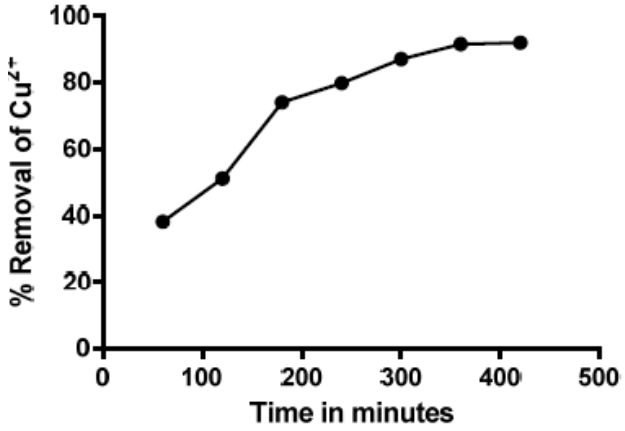

Figure 6: Effect of contact time of CMC/PEG/MMC – GLU (1:1:1)

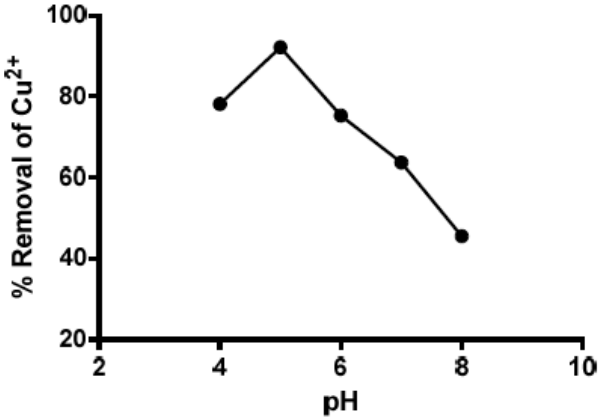

Figure 7: Effect of pH of CMC/PEG/MMC – GLU (1:1:1)