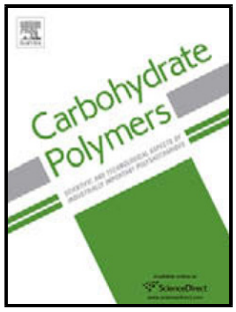


Title: Synthesis and flocculation performance of a chitosan-acrylamide-fulvic acid ternary copolymer

Authors: Lou Tao, Wang Xuejun, Song Guojun, Cui Guangpeng

PII: S0144-8617(17)30468-X
DOI: http://dx.doi.org/doi:10.1016/j.carbpol.2017.04.069
Reference: CARP 12257

To appear in:

Received date: 22-1-2017
Revised date: 21-3-2017
Accepted date: 24-4-2017

Please cite this article as: Tao, Lou., Xuejun, Wang., Guojun, Song., & Guangpeng, Cui., Synthesis and flocculation performance of a chitosan-acrylamide-fulvic acid ternary copolymer.*Carbohydrate Polymers* http://dx.doi.org/10.1016/j.carbpol.2017.04.069

# Synthesis and flocculation performance of a chitosan-acrylamide-fulvic acid ternary copolymer

Lou Tao*, Wang Xuejun*, Song Guojun, Cui Guangpeng

College of Chemistry & Chemical Engineering, Qingdao University, 308 Ningxia Road, Qingdao, PR China, 266071

* Corresponding authors: Email addresses: taolou72@aliyun.com (T. Lou), wangxjlt@aliyun.com (X. Wang).

**Highlights:**

- Two natural polymers of chitosan and fulvic acid were successfully grafted with a synthetic monomer of acrylamide.
- The amphoteric ternary copolymer flocculated three typical dyes effectively.
- The water soluble flocculant had wide pH effectiveness scope and flocculation window.
- Flocculation mechanism was combination of charge neutralization and bridging effect.

**Abstract:**

The flocculant made from natural polymers gained prominence in recent years due to its eco-friendliness and low cost. In this study, two natural polymers of chitosan and fulvic acid were successfully grafted with a synthetic monomer of acrylamide as a new type of flocculant. The prepared chitosan-acrylamide-fulvic acid (CAMFA) exhibited an excellent capacity to remove three typical dyes, the color removal ratios