

## Accepted Manuscript

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PII: S0169-4332(16)00170-7  
 DOI: <http://dx.doi.org/doi:10.1016/j.apsusc.2016.01.133>  
 Reference: APSUSC 32365

To appear in: *APSUSC*

Received date: 18-9-2015

Revised date: 13-1-2016

Accepted date: 15-1-2016

Please cite this article as: W. Qing, Y. Wang, Y. Wang, D. Zhao, X. Liu, J. Zhu, The Modified Nanocrystalline Cellulose for Hydrophobic Drug Delivery, *Applied Surface Science* (2016), <http://dx.doi.org/10.1016/j.apsusc.2016.01.133>

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# The Modified Nanocrystalline Cellulose for Hydrophobic Drug Delivery

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1. Torispherical Nanocrystalline cellulose (NCC) was synthesized through the improvements on the hydrolysis method.
2. NCC was firstly modified with a cationic surfactant cetyltrimethylammonium bromide (CTMAB) as a drug carrier.
3. The drug loading and release performance of CTMAB-coated NCC were studied using luteolin (LUT) and luteoloside (LUS) as model drugs.

**Abstract:** In this work, torispherical Nanocrystalline cellulose (NCC) was synthesized, and firstly modified with a cationic surfactant cetyltrimethylammonium bromide (CTMAB). It was proved that the kinetics of NCC adsorbing CTMAB followed the pseudo-second-order kinetics equation, and the adsorption isotherm model followed Freundlich which was multi molecular layer adsorption model. The morphology and structure of NCC and CTMAB-coated NCC were characterized by transmission electron microscopy (TEM) and X-ray powder diffraction (XRD). Stabilities of NCC and CTMAB-coated NCC were assayed by zeta potential. The results showed that NCC in CTMAB solution was well-dispersed and stable. Moreover, the drug loading and release performance of CTMAB-coated NCC were studied using luteolin (LUT) and luteoloside (LUS) as model drugs.

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