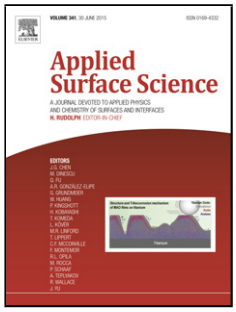

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The Modified Nanocrystalline Cellulose for Hydrophobic Drug Delivery

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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.