

## Accepted Manuscript

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PII: S0144-8617(17)30870-6  
DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2017.08.004>  
Reference: CARP 12611

To appear in:

Received date: 25-3-2017  
Revised date: 23-7-2017  
Accepted date: 1-8-2017

Please cite this article as: Wijaya, Christian J., Saputra, Stephanie N., Soetaredjo, Felycia E., Putro, Jindrayani N., Lin, Chun X., Kurniawan, Alfin., Ju, Yi-Hsu., & Ismadji, Suryadi., Cellulose nanocrystals from passion fruit peels waste as antibiotic drug carrier. *Carbohydrate Polymers* <http://dx.doi.org/10.1016/j.carbpol.2017.08.004>

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## Cellulose nanocrystals from passion fruit peels waste as antibiotic drug carrier

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### Research Highlights

- Cellulose nanocrystals (CNC) was extracted from passionfruit peels waste.
- CNC was employed as drug excipient for tetracycline (TC) delivery.
- High adsorption capacity of CNC toward TC was achieved through pH adjustment.

### ABSTRACT

Due to its excellent chemical and physical properties, cellulose nanocrystals (CNC) possess many potential advanced functional applications. In this study, CNC was extracted from natural product by hydrolyzing cellulose segment of passionfruit peels using sulphuric acid solution. The capability of CNC as drug carrier was tested toward tetracycline antibiotic. The drug loading processes were carried out at various pH (3 to 7) with the optimum uptake of tetracycline achieved at pH 3. The *in vitro* release of tetracycline drug was carried out in

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