

## Cellulose Chitosan And Keratin Composite Materials

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A method was developed in which cellulose (CEL) and/or chitosan (CS) were added to keratin (KER) to enable [CEL/CS+KER] composites formed to have better mechanical strength and wider utilization. Butylmethylimidazolium chloride ([BMIm + Cl - ]), an ionic liquid, was used as the sole solvent, and because the majority of [BMIm + Cl - ] used (at least 88%) was recovered, the method is green ...

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### *Cellulose, Chitosan, and Keratin Composite Materials ...*

Novel composites were synthesized from keratin (KER), cellulose (CEL) and chitosan (CS). The method is recyclable because majority (>88%) of [BMIm + Cl<sup>-</sup>], an ionic liquid (IL), used as the sole solvent, was recovered for reuse. Experimentally, it was confirmed that unique properties of each component remain intact in the composites, namely bactericide (from KER and CS) and anti-inflammatory ...

### *Cellulose-Chitosan-Keratin Composite Materials: Synthesis ...*

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### *Cellulose-Chitosan-Keratin Composite Materials: Synthesis ...*

Tran et al. developed a method incorporating cellulose with or without chitosan combined with keratin to form a composite [130]. Ciprofloxacin was placed in the composite to study the drug ...

### *Cellulose, Chitosan, and Keratin Composite Materials ...*

Cellulose, Chitosan and Keratin Composite Materials. Facile and Recyclable Synthesis, Conformation and Properties. Article in ACS Sustainable Chemistry & Engineering 4(3) · February 2016 with 51 ...

### *Cellulose, Chitosan and Keratin Composite Materials ...*

Cellulose, Chitosan and Keratin Composite Materials: Facile and Recyclable Synthesis, Conformation and Properties . By Chieu D. Tran (1374489) and Tamutsiwa M. Mututuvari (1374492) Cite . BibTex; Full citation Abstract. A method was developed in which cellulose (CEL) and/or chitosan (CS) were added to keratin (KER) to enable [CEL/CS+KER] composites formed to have better mechanical strength and ...

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*Cellulose, chitosan, and keratin composite materials ...*

Cellulose, Chitosan and Keratin Composite Materials: Facile and Recyclable Synthesis, Conformation and Properties Chieu D. Tran\* and Tamutsiwa M. Mututuvvari Department of Chemistry, Marquette University, 535 N. 14th Street, Milwaukee, Wisconsin 53233, United States \*S Supporting Information ABSTRACT: A method was developed in which cellulose (CEL) and/or chitosan (CS) were added to keratin ...

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Cellulose, Chitosan, and Keratin Composite Materials. Controlled Drug Release. Chieu D. Tran \* Tamutsiwa M. Mututuvvari; View Author Information. Department of Chemistry, Marquette University, P.O. Box 1881, Milwaukee, Wisconsin 53201, United States \*Tel.: 1 414 288 5428. E-mail: [email protected]. Cite this: Langmuir 2015 31 4 1516-1526. Publication Date (Web): December 30, 2014. Publication ...

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*Cellulose, Chitosan, and Keratin Composite Materials ...*

Cellulose-Chitosan-Keratin Composite Materials: Synthesis, Immunological and Antibacterial Properties Meghann Rosewald Marquette University Fang Yao Stephen Hou Marquette University, fangyaostephen.hou@marquette.edu Tamutsiwa Moven Mututuvvari Marquette University April L. Harkins Marquette University, april.harkins@marquette.edu Chieu D. Tran Marquette University, chieu.tran@marquette.edu ...

*Cellulose-Chitosan-Keratin Composite Materials: Synthesis ...*

Novel composites were synthesized from keratin (KER), cellulose (CEL) and chitosan (CS). The method is recyclable because majority (>88%) of [BMIm(+)-Cl(-)], an ionic liquid (IL), used as the sole solvent, was recovered for reuse. Experimentally,

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Cellulose and chitosan were mixed in N-methylmorpholine-N-oxide (NMMO) and heated to 100 °C, and then were processed under a pressure of 70 kg/cm<sup>2</sup> exerted by a compression molding machine at 100 °C for 8 min. As a result, transparent orange viscose films were obtained. After rinsing with deionized water and drying transparent yellowish blend films were obtained.

*Preparation and characterization of cellulose/chitosan ...*

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keratin materials show that these natural composites are a remarkable alternative to potentiating chitosan–starch films with sustainable features  
Keywords Chemical modification · Keratin · Chicken feather · Sodium hydroxide · Biopolymer composite ...

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### *Cellulose Chitosan And Keratin Composite Materials*

Chitosan is highly compatible with other biopolymers thus its blending with cellulose and/or incorporation of nanofiber isolated from cellulose namely cellulose nanofiber and cellulose nanowhiskers are generally useful. Cellulosic fibers in nano scale are attractive reinforcement in chitosan to produce environmental friendly composite films with improved physical properties. Thus chitosan ...

### *A review on chitosan-cellulose blends and nanocellulose ...*

The bacterial infections have always a serious problem to public health. Scientists are developing new antibacterial materials to overcome this problem. Polysaccharides are promising biopolymers due to their diverse biological functions, low toxicity, and high biodegradability. Chitin and chitosan have antibacterial properties due to their cationic nature, while cellulose/bacterial cellulose ...

### *Applications of cellulose and chitin/chitosan derivatives ...*

Zhenni Cao, Xiaogang Luo, Hao Zhang, Zhen Fu, Zhi Shen, Ning Cai, Yanan Xue, Faquan Yu, A facile and green strategy for the preparation of porous chitosan-coated cellulose composite membranes for potential applications as wound dressing, Cellulose, 10.1007/s10570-016-0860-y, 23, 2, (1349-1361), (2016).

### *Chitosan–cellulose composite for wound dressing material ...*

The results indicated that the prepared cellulose/chitosan (1:1) composite can adsorb 0.53 mmol/g Cu<sup>2+</sup>, 0.28 mmol/g Cd<sup>2+</sup> and 0.16 mmol/g Pb<sup>2+</sup> ions at pH 5.0. The Freundlich model and the pseudo-second-order model were in good agreement with the adsorption isotherms and kinetics, respectively. X-ray photoelectron spectroscopy studies indicated that the binding of heavy metal ions is ...

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