Cellulose based aerogel microfibers for biomedical applications

PROPOSITIONS

Belonging to the PhD dissertation

"Cellulose Based Aerogel Microfibers for Biomedical Applications"

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1) Cellulose, the most abundant natural polymer, is renewable, biocompatible and biodegradable material which has been used in biomedical applications such as drug delivery and wound dressing.

PhD thesis

2) Cellulose aerogels are favorable wound dressing materials thanks to aerogel's low density, high porosity, large specific surface area and cellulose intrinsic characteristics.

PhD thesis

3) Transforming aerogels into fibrous structure improves their fragility issue and reduce fabrication time which can broaden their application in commercial sectors.

PhD thesis

4) Supercritical carbon dioxide can be used to fabricate cellulose aerogels and load drugs within the polymeric matrix of cellulose aerogels.

Chapters 3, 4 & 5

5) Solution blowing spinning is a simple novel technique to fabricate cellulose nonwoven aerogels consisting of nano/microfibers.

Chapter 5

6) The drug release of cellulose aerogel fibers can be tuned by aerogel hybridization with other biopolymers such as chitosan or by surface modification, for instance through gas-phase esterification methods.

Chapters 4 & 5

7) Wound dressing materials accelerate the wound healing process and improve the life quality of the patients.

8) Novelty can originate from an unseen combination of materials or processing techniques.

9) Clear visualization of processes and data is important to communicate complicated scientific messages effectively; a schematic image that represents the findings of an article allows everyone to understand the main results of a study easily.

10) Stand up for what you believe in, no matter how much you are impacted by inequitable conditions. "A smooth sea never made a skilled sailor." – *Franklin D. Roosevelt*