

Novel procedure for the preparation of aerogels with good mechanical properties and moisture resistance, using a simple method and with multiple applications

DESCRIPTION OF THE TECHNOLOGY

The CSIC has developed a new procedure to prepare hydrophobic aerogels based on biopolymers, using a simpler and faster method than the currently available ones. It allows obtaining materials with good mechanical properties and highly resistant to moisture.

Aerogels are highly porous and low density materials. Current available manufacturing processes are complex, with multiple stages and require of expensive or highly pollutant chemical compounds. This new procedure makes possible to obtain hydrophobic aerogels with good mechanical properties through a simple method that uses low-cost renewable and biodegradable

materials (cellulosic materials that can be extracted from biomass).

This novel procedure, which is simpler and faster than current available processes, produces aerogels with excellent mechanical properties and hydrophobic capacity.

Furthermore, and considering that the aerogels can be used in multiple applications, this novel procedure allows to incorporate different compounds (such as antioxidant extracts) to its structure in order to modify its characteristics and make it suitable for the desired application.

MARKET APPLICATION SECTORS

High performance materials, chemistry, environmental chemistry, food, etc.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

- The manufacturing procedure improves significantly current available methods.
- The aerogel production process is totally based on low-cost renewable and biodegradable materials.
- Resulting aerogels have good mechanical properties and moisture resistance.
- It allows the addition of different compounds to adapt the properties of the aerogel to multiple different uses.
- Multiple possible applications: packaged food preservation, biomedicine, thermal and acoustic insulation, etc.
- Because of its hydrophobic properties and selective sorption capacity for oils, it can be used for oil adsorption in diverse environments, like the adsorption of oil spills.

CURRENT STATE OF DEVELOPMENT

PCT application filed.

COLLABORATION SOUGHT

Companies in the field of biomedics, packaging, environmental engineering, insulation, among others, interested in the license of the patent are being sought.

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Figure 1. Aerogel showing its hydrophobic capacity.

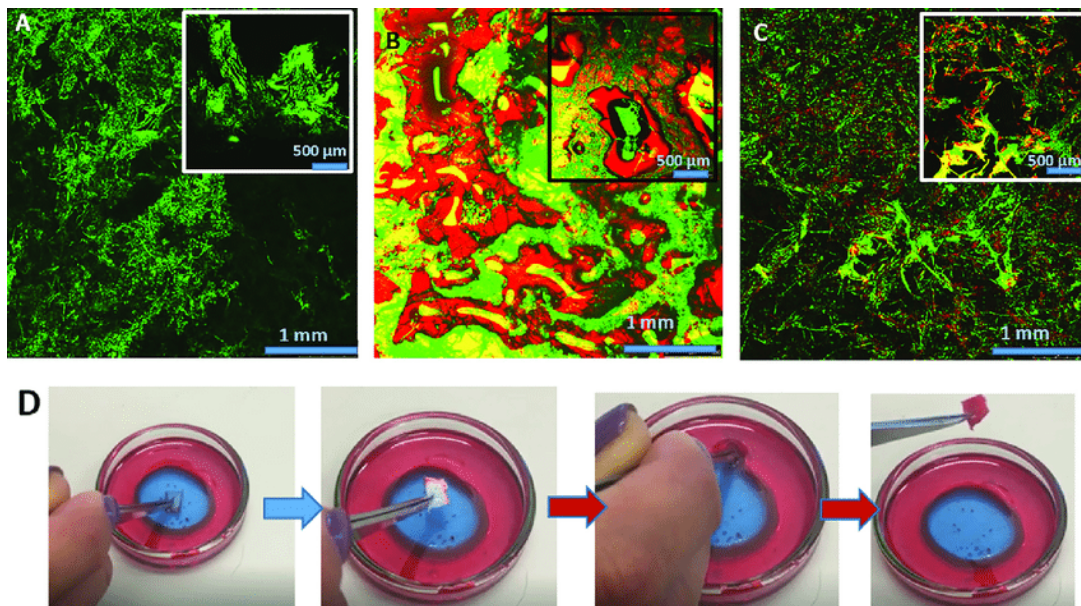


Figure 2. Microscopic images of the aerogel (A) before being immersed into oil, (B) after being immersed into oil, and (C) after drying for 50 days. (D) Different behaviors of the aerogel when submerged into water (blue) and oil (red).

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