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Thermal conductivity, structure and mechanical properties of konjac glucomannan/starch based aerogel strengthened by wheat straw

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Highlights:

- Four natural raw materials were used for KGM/starch based aerogel preparation
- KGM/starch based aerogel preparation via an energy efficient freeze drying method.
- Starch was used to increase the mechanical strength of KGM/starch based aerogels.
- Wheat straw can improve thermal insulation by affecting pore structure.
- Thermal insulation mechanism of KGM/starch based aerogel was discussed.

Abstract:

This study presents the preparation and property characterization of a konjac glucomannan (KGM)/starch based aerogel as a thermal insulation material. Wheat straw powders (a kind of agricultural waste) and starch are used to enhance aerogel physical properties such as mechanical strength and pore size distribution. Aerogel

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