

Low-cost nano-super absorbents for health industries from wheat waste

Researchers at Shahid Beheshti University have synthesized a nano-super-absorbent from wheat waste that, while being more compatible with the environment, has high water absorption capacity, and can be used in healthcare industries.

Dr Seyed Rahman Jafari, a member of the faculty of Shahid Beheshti University, pointed out the disadvantages of organic materials used in the production of superabsorbants in the market, said that hypersensitive health conditions in the market can be used to create susceptibility to neonates, which is to address this problem. These studies were conducted to investigate the strength of cellulose nanofibers derived from wheat waste in water absorption and storage as well as superabsorbent reinforcement ability.

He noted that in addition to minimizing the health problems of using superabsorbants, the cost of their production was reduced to about one-third of the market's superabsorbent.

The researcher noted the super absorption mechanism and their special efficiency in the agricultural field:

superabsorbers consist of three-dimensional hydrophilic polymers that can store large amounts of water through hydrogen bonding with water molecules. Thus, in recent years, their use in the agricultural field has increased, because superabsorbents can be prevented from storing and releasing water in a timely manner.

Jafari stated that in this study all the raw materials for the synthesis of naturally occurring nanoparticles and derived from cellulose have been noted, including carboxymethyl cellulose, ethyl cellulose, cellulose nanofibers, as well as citric acid as the agent for crosslinking and after The nanosilver-absorbing synthesis has been used for electron microscopy field publishing for microstructure study. Finally, the amount of water absorption and salt solutions was evaluated.

A member of the faculty at Shahid Beheshti University stated: "The results of this research indicate that each gram of this nanosilver absorbs the ability to absorb 200 grams of water, in the presence of 10 percent by weight of nanoparticle fiber, as well as the ionic sensitivity of this the nanosubsubstrate has been reported between 0.73 and 0.98.

The results of this study were published by Dr. Seyed Rahman Jafari and Dr. Esmail Rasuli Garmroudi, faculty members and engineer Jalal Ranjbar, a graduate of the Master's degree in

Shahid Beheshti

University, and published in the journal Carbohydrate Polymers
with the impact
factor of 5.158.