Edible energy storage devices

Edible rechargeable batteries represent a novel opportunity for energy storage, which currently involves the use of toxic materials. Being entirely made of food-derived materials and additives, such batteries open the way to electronic systems characterized by ...

Introducing an edible soy sauce-based gel with impressive ionic performance provides a promising alternative to conventional energy storage devices, enabling the advancement of cutting-edge ingestible ...

Miniature energy storage devices simultaneously combining high energy output and bioavailability could greatly promote the practicability of green, safe, and nontoxic in vivo detection, such as for noninvasive monitoring or ...

An Edible and Nutritive Zinc-Ion Micro-supercapacitor in the Stomach with Ultrahigh Energy Density. Kaiyue Chen, Liben Yan, Yukai Sheng, Yu Ma, Liangti Qu, ... Miniature energy storage devices simultaneously combining high energy output and bioavailability could greatly promote the practicability of green, safe, and nontoxic in vivo detection ...

Miniature energy storage devices simultaneously combining high energy output and bioavailability could greatly promote the practicability of green, safe, and nontoxic in vivo detection, such as for noninvasive monitoring or treatment in the gastrointestinal tract, which is still challenging. Herein, we report ingestible and nutritive zinc-ion-based hybrid micro ...

These results show that the combination of ethyl cellulose and activated carbon, and the control over their mixture, allow on-demand edible devices for energy generation and storage, serving ...

He received his Ph.D. in solid mechanics from Tsinghua University in 2001. His research interests include mechanics and devices of novel electronics, such as stretchable electronics and edible electronics, along with energy storage devices and mechanical metamaterials. 2.1. Materials for Making Electronic Components 2.1.1.

Several edible supercapacitors, another type of storage component, with energy density of up to 3.36 mWh g -1 (ref. 103) have been implemented by combining a variety of edible materials, such as ...

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Energy harvesting devices (solar cells, biofuel cells, triboelectric nanogenerators, etc.), and other electronic

components (transistors, actuators, sensors, etc.) are also expected to generate an all-in-one and fully self-adaptable device. 106 - 111 Moving forward, we believe that synergy between novel chemical designs and advanced device ...

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This work provides an example for the design and fabrication of edible energy storage devices with high performance. ... Miniature energy storage devices simultaneously combining high energy output and bioavailability could greatly promote the practicability of green, safe, and nontoxic in vivo detection, such as for noninvasive monitoring or ...

Their use as electrodes in edible energy harvesting and storage devices with promising figures of merits, combined with simple and scalable fabrication schemes, shows a concrete path to fulfill the energetic requirements of envisioned edible systems, from edible smart pills, to food tags and control units in edible actuators (e.g. TENGs and SC ...

Miniature energy storage devices simultaneously combining high energy output and bioavailability could greatly promote the practicability of green, safe, and nontoxic in vivo detection, such as for noninvasive monitoring or treatment in the gastrointestinal tract, which is still challenging. Herein, we report ingestible and nutritive zinc-ion-based hybrid micro-supercapacitors (ZMSCs ...

Electronic devices with multiple features bring in comfort to the way we live. However, repeated use causes physical as well as chemical degradation reducing their lifetime. The self-healing ability is the most crucial property of natural systems for survival in unexpected situations and variable environment

3.4 Power Supply: Energy Storage Devices and Harvesting Technologies. Powering edible electronic devices is a formidable challenge. An efficient power supply embedded in the device is essential for the operation of most of the ...

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