Chinese research teams develop oxygen-reactive smart labels

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厦门大学 Xiamen University

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FOOD CHAIN AREA




ISSUE ADDRESSED

Food counterfeiting and tampering is a widespread problem, particularly in regions such as China. Activities such as this can pose a severe health threat, as counterfeit or tampered food may contain toxic additives or substitutes while compromising the image of the brands they imitate. They also lead to unnecessary food waste.

SOLUTION

Chinese research teams from the Xiamen University and Fujian Institute of Research have developed low-cost, environmentally-friendly oxygen-reactive smart labels. The smart labels make use of honeycomb-like nanospheres made from a commercially-available polymer that change colour when exposed to oxygen.

Many types of food, including meats, potato chips, and fruits, are kept in vacuums or their packaging is filled with inert gases, such as carbon dioxide or nitrogen, to preserve freshness and prolong shelf life. The oxygen-sensing nanoparticles integrated in the smart labels can be used to detect oxygen within packaging, which is an indicator of tampering or adulteration. Additionally, researchers suggest that they can be used to determine if a product is genuine or counterfeit.

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EXPECTED BENEFITS

Increased consumer safety, brand protection, and anti-counterfeiting and reduced food waste: The oxygen-sensing nanoparticles found within these smart labels can be used to detect compromised products while being able to identify counterfeits. If any compromise is detected, the packaging changes colour, making it easy for both distributors and consumers to determine whether a product is safe to consume and whether the product is counterfeit or genuine. This reduces needless food waste.

CASE LINK

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