

Title: Photovoltaic panel red film

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The red onion-treated film maintained its UV protection and light transmission over time, while other bio-based filters, such as those treated with iron ions, lost effectiveness.

Bio-based nanocellulose films treated with red onion extract offer 99.9% UV protection, outperforming commercial petroleum-based filters.

Scientists have discovered that red onion dye can significantly improve the UV protection and longevity of solar panels, especially for advanced perovskite solar cells.

Researchers at the University of Turku in Finland have developed a bio-based film that provides high-performance UV protection for solar cells, utilizing nanocellulose treated with red onion skin extract.

A recent study has demonstrated that nanocellulose films infused with red onion skin extract exhibit superior UV-blocking properties. These bio-based films achieved 99.9% UV ...

The nanocellulose film with red onion extract preserved its optical qualities remarkably well, showing only minor discoloration yet continuing to protect the solar cells.

In a lab in Turku, Finland, scientists have found a surprising ally in the fight for sustainable solar energy: the papery red skin of an onion.

Red onion dye could be the missing ingredient required to bolster ultraviolet (UV) protection for solar cells, scientists say.

However, when comparing their effectiveness, researchers found that the red onion extract-treated film delivered the best results. Not only did it provide superior UV protection, but it ...

Researchers have developed a sustainable UV protection film from red onion peels, extracting quercetin and



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infusing it into nanocellulose. This bio-based shield absorbs 99.9% of UV ...

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