



The new thermotherapy patches use plant leaves as the base for silver nanowires | Photo source Tampere University

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BIODEGRADABLE HEAT THERAPY PATCHES MADE FROM PLANT LEAVES

SCIENCE

Silver nanowires follow the skeleton pattern on each leaf, allowing for flexible application and use

Spotted: One of the main hazards of thermotherapy patches is their propensity to cause burns. Whether on older people who are less sensitive to the heat or on people who fall asleep while using their pad, traditional materials make it difficult to easily assess the activity of the treatment.

A team of researchers from Finland's Tampere University of Applied Sciences have created a sustainable, transparent solution. The new thermotherapy patches use plant leaves as the base for silver nanowires. The nanowires follow the skeleton design of the leaf and are then encased in flexible, see-through and biodegradable tape. Wearers can monitor their body's reaction to the heat, thereby reducing the risk of burning their skin.

The placement of the wires on the leaf vein pattern makes the patches flexible and highly effective at transferring heat. The flexibility allows wearers to move while receiving treatment, and the rapid heat transfer reduces the time required to use the patch.

Useful in treatment for conditions including arthritis and in certain types of physical therapy, the heat patches are also likely to prove beneficial to other industries, from wearables and sensors to industrial manufacturing.

The natural world is increasingly inspiring creators, with Springwise spotting innovations for everything from clothing recycling via moths, to bacteria-based indigo jean dye.

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Takeaway:

As a tenet of design philosophy, biophilia has already begun changing the built environment in myriad ways. With the addition of nanotechnology and electronics, another realm of interactivity becomes possible. Mental and physical health could benefit from invisible treatments, new methods of providing care for vulnerable people and changes to the ways public services are provided. In the world of work and home, offices and community spaces could benefit from the seamless integration of nature with technology, and everyday patterns of use.