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ASIA EDITION

A spinach leaf turned into a functional heart tissue

March 27, 2017 | News | By BioSpectrum Bureau

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Researchers at Worcester Polytechnic Institute (WPI) in Massachusetts have identified a way to use spinach leaves for building functional human heart muscle.

This model is based on the fact that a leaf is the branching network of intricate veins that delivers water and other nutrients to its cells. This function of plant veins has been replicated to represent the movement of blood through human tissues.

The researchers removed the plant cells from the spinach leaves keeping behind only a cellulose frame work. The human cells were then seeded into the leaves for making the human tissues grow on the spinach scaffolding and surrounding the tiny veins. After the leaves turned into a structure resembling the human heart, fluids and microbeads were sent through its veins for representing the flow of blood cells through this system.

Cellulose has been previously used in cartilage tissue engineering, bone tissue engineering and wound healing. Researchers are hopeful that this new technique could be useful in growing layers of healthy heart muscles for treating heart attack patients.

The capillary network system is principally similar in both plants and animals.
Researchers have been using 3D printing techniques for recreating delicate and intricate networks of human tissues, but this technique appears to be more approachable and promising.