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## SRUC Research will Use Plants to Recover Metal Nanoparticles

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Cutting-edge research will be used in a £375,000 project to find a plant-based alternative for the recovery of gold, silver and copper nanoparticles from mining waste.

The project, led by Scotland's Rural College ([SRUC](#)), will combine a plant-based technique called phytomining – where plants absorb metal ions through their roots – with an advanced biotechnological approach to retrieve the resulting metal nanoparticles from the waste.

Supported by expertise from the universities of York, Edinburgh and Nottingham, and two key players in the [UK](#) mining and nanotechnology industry - Scotgold Resources and Promethean Particles respectively - the researchers will use native [UK](#) plants to retrieve metal nanoparticles (NPs) such as gold, silver, and copper from mine tailings taken from the Cononish mine near Tyndrum.

Once the plants have undergone advanced biomass processing to retrieve the NPs, the team will then investigate the potential of using the waste for conversion into biogas or other value-added bioproducts.

The project will generate unprecedented knowledge about using phytomining to produce biogenic NPs from metal-rich wastes, facilitating a first-time assessment of their potential in the industrial, agricultural, environmental and biomedical sectors.

Additionally, it will enable the development of new biotechnology to support the R&D sector, and the design of specific high-value bioproducts from the waste biomass for commercial-scale production.

Lead researcher Dr Luis Novo, an SRUC Challenge Research Fellow, said: “The ever-growing

build-up of mine waste across the planet constitutes an opportunity for the recovery of residual metals of technological significance.

“There has been increased interest in biogenic NPs due to advantages over chemically synthesized NPs.

"In this light, producing NPs via phytomining heralds great promise as it would represent a low-cost, eco-friendly and carbon-neutral strategy to farm nanoparticles from residues.”

Read the [original article](#) on Grampian Online.