

New research shows Phosphorus recovery from wastewater viable

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Phosphorus is often removed from wastewater before the water is discharged to the environment.

Phosphorus is a precious element, with all life depending on it. It is an essential nutrient for plant growth and an important constituent of fertiliser used in agriculture.

Phosphorus is often removed during wastewater treatment because it can lead to algal blooms in waterways. It is traditionally removed from wastewater streams using chemical or biological processes before the water is discharged to the environment.

Wastewater streams typically contain low concentrations of phosphorus, making direct recovery of phosphorus both technically and economically challenging. However, a team from CSIRO has developed a technique that can recover phosphorus from these low concentrations to provide a valuable resource.

The conventional [biological treatment](#) process known as enhanced biological phosphorus removal (EBPR) removes phosphorus from wastewater by selectively enriching a group of bacteria known as [polyphosphate](#) accumulating organisms.

CSIRO's novel approach, termed enhanced biological phosphorus removal and recovery (EBPR-r), exploits this unique characteristic of the

organisms to 'carry' the phosphorus from the diluted wastewater stream over to a concentrated recovery stream.



Phosphorus is an essential nutrient for plant growth and an important constituent of fertiliser used in agriculture.

The result was a phosphorus concentration in the recovery stream that was approximately four times that of the phosphorus concentration in the original wastewater.

The novel approach has applications for [wastewater treatment](#) utilities and fertiliser producers alike.

Further research is underway to increase the phosphorus concentration in the recovery stream.

This research is being delivered through the [Urban Water](#) Technologies Stream of CSIRO's Water for a Healthy Country Flagship.

More information:
www.ozwater.org/conference/program

Provided by CSIRO

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