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Phytoremediation performance of floating treatment wetlands with pelletized mine water sludge for synthetic greywater treatment

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Abstract

Purpose

Buckets containing floating reed (*Phragmites australis*) simulated floating treatment wetlands (FTWs) and were used to improve the remediation performance of synthetic greywater (SGW). The aim of the study was to investigate the behaviour of FTWs for treatment of key contaminants within artificial greywater.

Methods

Pelletized ochre based on acid mine water sludge was introduced to selected FTWs, because of its capability in sequestration phosphorus and other trace elements. The impact of the following four operational variables were tested in the experimental set–ups of the FTWs (four replicates each): pollutant strength (high– (HC) and low– (LC) concentrations), treatment time (2– or 7–days of hydraulic retention time (HRT)), presence or absence of macrophytes (*P. australis*) and cement–ochre pellets.

Results