

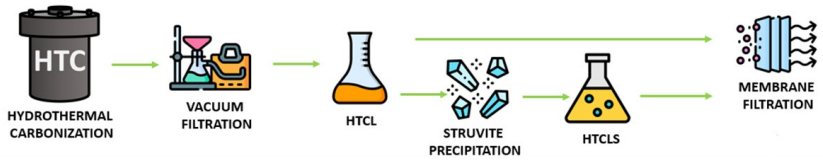
# Phosphorous recovery in the form of struvite from post-processing liquid from the hydrothermal carbonization of sewage sludge treated by the membrane technique

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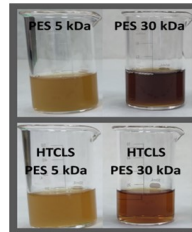
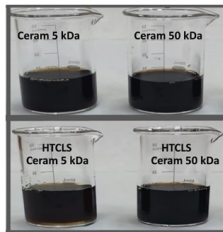
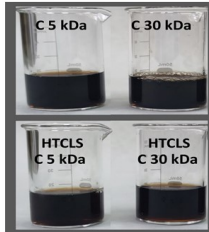
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## Graphical Abstract



## Liquids

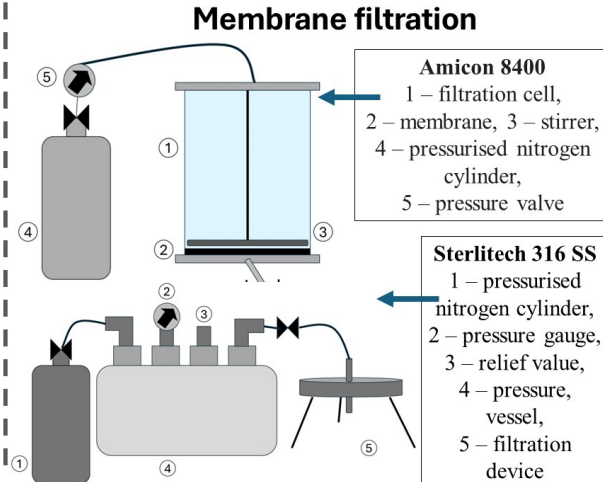
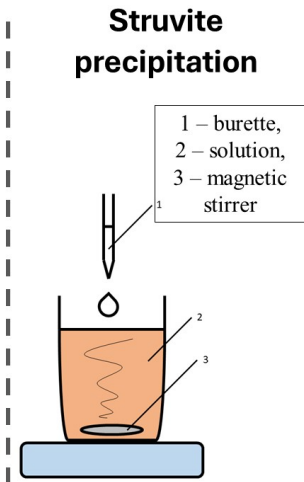
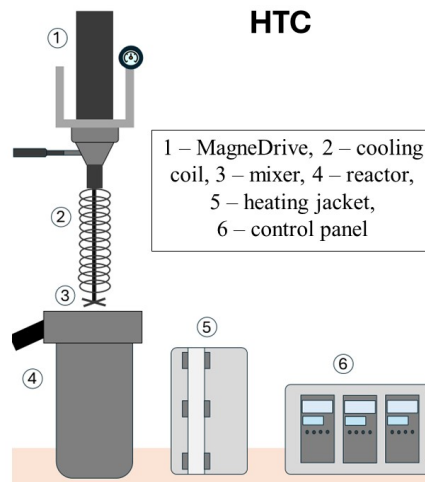


Regenerated Cellulose Membranes

Ceramic Membranes

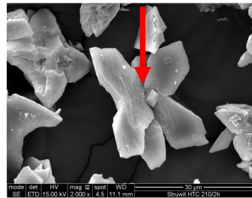
Polyethersulphone Membranes

## Experimental stations

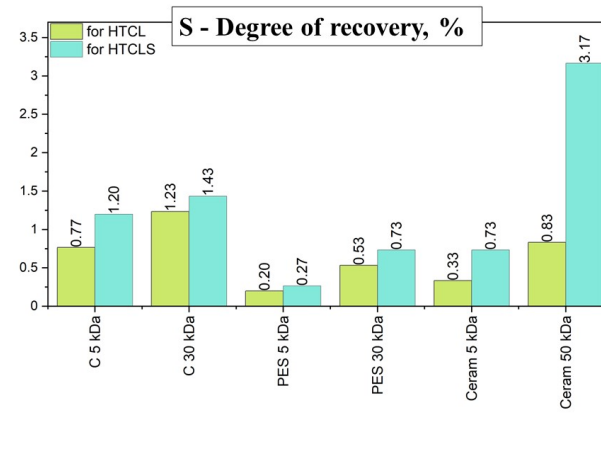
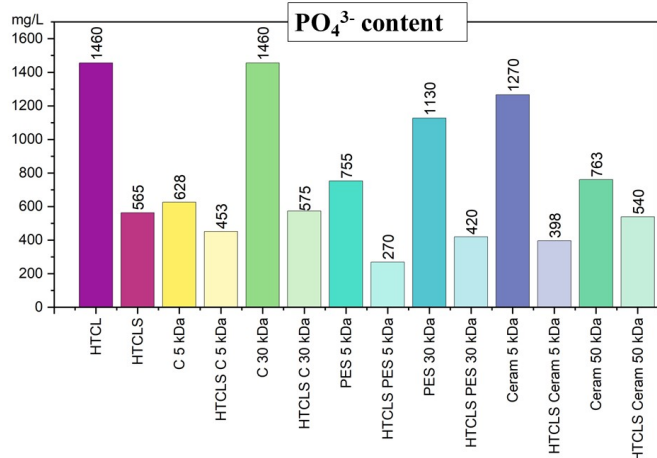
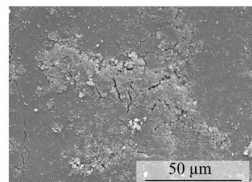


## Results

STRUVITE with „X” structure



FOULING ON MEMBRANE



## Conclusions

1. Struvite precipitation caused the reduction of phosphorus compound in the HTC liquid.
2. Membrane filtration was used to purify the liquid after HTC and the liquid from struvite precipitation.
2. Struvite precipitation caused higher retention of contaminants.
3. Struvite precipitation caused higher liquid recovery.

## Acknowledgements

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