

CS6: Karmiel-IL

Biogas production from anaerobic pre-treatment of municipal and/or industrial wastewater

Recovery of high-value products from olive mill wastewater

Objectives:

- Reducing the high organic load peaks in WWTP main stream, caused by mixing with olive mill and slaughterhouse wastewater, using immobilized high rate Advanced Anaerobic Technology system (AAT)
- Recovery of polyphenols from olive mill wastewater



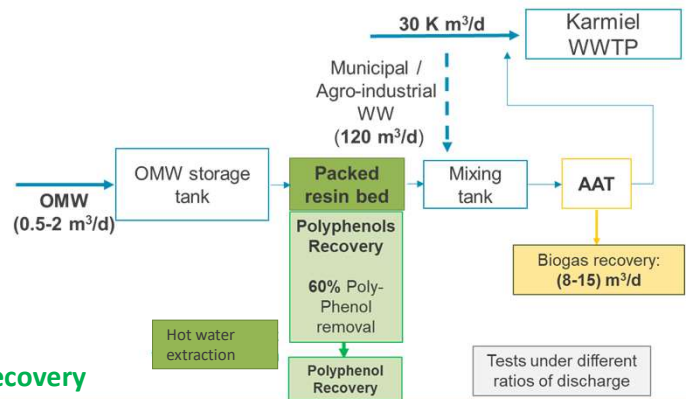
Lead partner:



TRL: 5 → 8

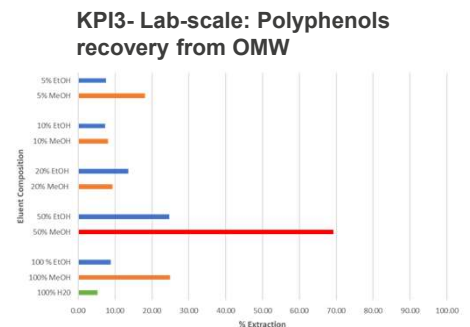
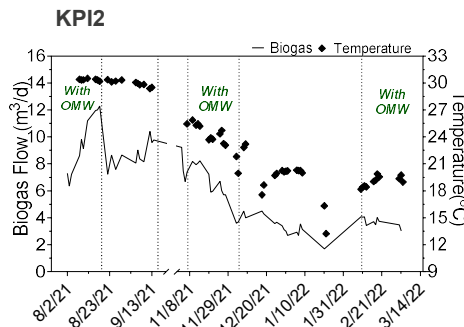
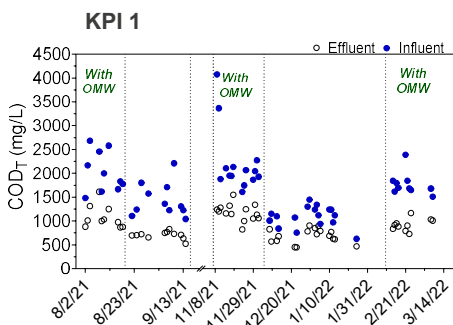
Capacity: 120 m³/d, 0.5-2 m³/d

Quantifiable targets: 8-15 m³ biogas/d; 20-25% reduction of energy demand; 25% energy recovery > 40% Polyphenols recovery



First results –

- Summer period:** COD removal of 46% was obtained for COD_{in} of 2280 mg/l (WW+OMW), where the removal was 49% of 1430 mg/l (without OMW).
- Winter period:** COD removal of 47% was obtained for COD_{in} of 1770 mg/l (WW+OMW), where the removal was 36% of 1088 mg/l (without OMW).
- The addition of OMW shows an increase of the biogas production while the process was highly dependent on temperature
- Water-methanol mixture (50:50 b.v.) yielded 69% polyphenols recovery



Lessons learned from the construction and start-up

- Active AAT system can immediately utilize the addition of the OMW with total COD up to 2500 mg/l
- Long term storage of OMW affects the performance

What is crucial in terms of replication of the technology?

- Cost effectiveness of the recovery of high-value products from olive mill wastewater (polyphenol and biogas)
- Proper storage management of OMW
- Overcoming the local agro-industrial WW discharge regulations

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