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BOOK OF ABSTRACTS

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P49. Exopolysaccharides production by aerobic granular sludge upon exposure to dual anthropogenic stresses

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Aerobic granular sludge (AGS) is a promising technology for the treatment of urban and industrial wastewater and its implementation at full-scale is growing worldwide. Extracellular polymeric substances (EPS) produced by the AGS microorganisms is crucial not only for granules formation and stability but also for cells protection against harsh conditions in the living environment which often occur in industrial wastewaters. Some industrial sectors, such as agro-food, petrochemical, textile, chemical manufacturing among others, use inorganic and organic salts in the process chain, producing streams difficult to manage due to their complexity.
In this study, the combined effect of salinity and different pharmaceuticals on the EPS production by AGS was evaluated in short-term (24 h) batch assays. Synthetic wastewater containing different salt concentrations and a pharmaceutical (diclofenac or carbamazepine at 8 mg L^{-1}) was inoculated with AGS. EPS production was assessed, and its biochemical characterization was performed. The microbial community was followed through 16S rRNA gene massive parallel sequencing. The pharmaceuticals removal was assessed revealing that the increase in salinity did not benefit the pharmaceuticals removal. Differences were found in the EPS production and composition upon exposure to different salt concentrations and pharmaceutical compounds. The impact of the stressful situations on the microbial community is under evaluation. Characterizing EPS compositions and microbial communities can help to elucidate the EPS´s function in the AGS process.

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