Quick and reliable evaluation of novel biofouling control strategies

Impact

- Reduced biofouling impact on membrane performance
- Superior chemical cleaning of membrane modules
- Increased lifespan of membrane modules
- Reduced costs and chemical waste
- Eco-friendly and effective strategies for biofouling control

Approach: Membrane fouling simulators (MFSs)

- Accelerated biofilm formation carried out in MFSs.
- Subsequently, MFSs cleaned as per conventional cleaning strategy (NaOH + HCl), with “G” only, and “G” + HCl.

Results

- “G” is highly effective in restoring membrane performance (Fig. 2A)
- “G” cleaning results in up to two-fold greater biomass inactivation (Fig. 2B)
- “G” enhances the solubilization of proteinaceous biofilm foulants (Fig. 2C)
- Research is underway to recover and reuse “G” from the waste solution

Conclusion

Short-term lab-scale accelerated biofouling simulation studies carried out using MFSs enable quick and reliable assessment of novel biofouling control strategies and eliminate the need for expensive, laborious and destructive analysis of full-scale membrane elements.

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