

Monitoring of MBR fouling properties by filtration resistance and zeta potential measured for both filtration and backwashing directions

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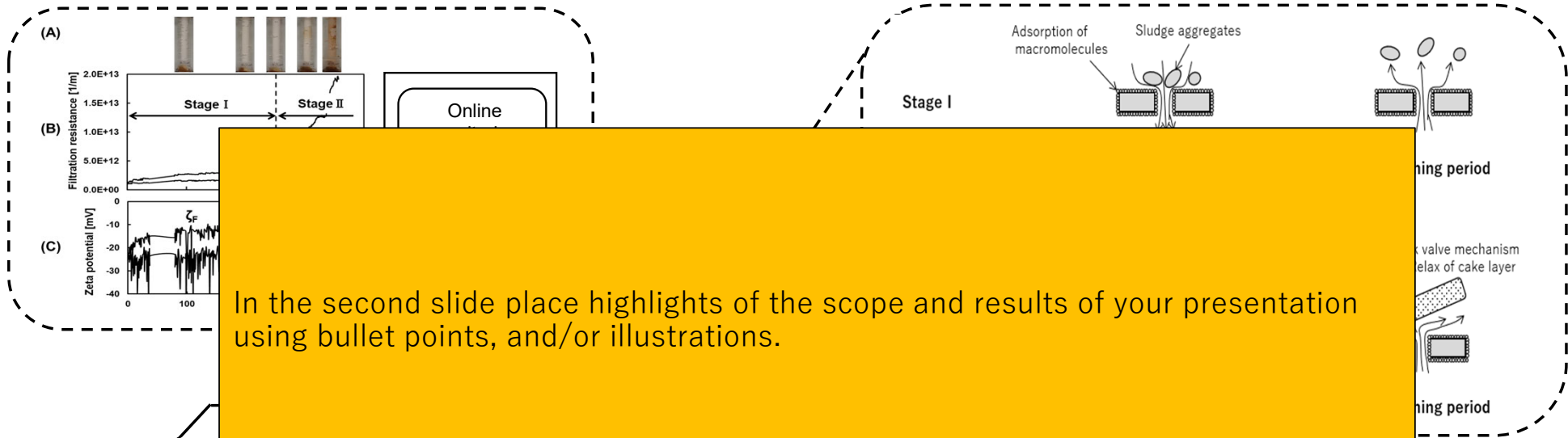
Abstract

The properties of module clogging and membrane fouling were studied by direct visualization and by monitoring filtration resistance and zeta potential for both filtration and backwashing directions in a lab scale MBR using alumina tubular microfiltration membrane. The clearance of flow channel of membrane module was optimized at 5mm for avoiding clogging by sludge aggregates using visual observation. The filtration resistance and zeta potential were measured for both filtration and backwashing directions, which are filtration and backwashing directions, respectively. The cake layer thickness increased the filtration resistance. This property was elucidated by the resistance-in-series model. The analysis of physical and chemical cleaning experiments by the resistance-in-series model also supported this model. It was shown that the local filtration resistances caused by macromolecule adsorption and cake layer, which are important for the recognition of the fouling status, can be evaluated from the filtration resistances for both filtration direction and backwashing directions. And these resistances are easy to monitor during MBR operation. The absolute value of zeta potential showed a decreasing trend with increase in filtration resistance.

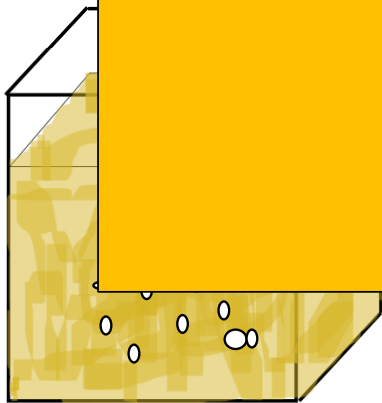
- Abstract (100-200 word, 16 point)
- The first slide should include presentation title, author names(presenter's name should be underlined), Affiliations, and 100-150 words abstract.

Monitoring of fouling index

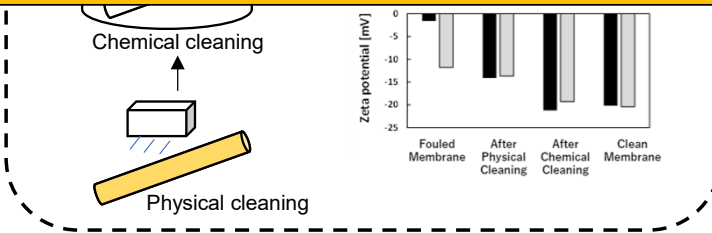
On time understanding of fouling status



In the second slide place highlights of the scope and results of your presentation using bullet points, and/or illustrations.



Bioreactor



Optimizing of MBR operation