

GOALS

Microfibres (MFs) are the predominant microplastic type found in domestic wastewater effluents and the stomach of marine fauna. Due to its bio-sustainability features, it was investigated whether bacterial cellulose membranes (BC) and hydrogels (grounded residues of BC) (BCH) could be used to remove MFs from contaminated waters, as a natural flocculant.

CONCLUSION

These results show that BC membranes and residues offer a high-performing, environmentally friendly, sustainable option in wastewater treatment for MFs contamination.

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RESULTS

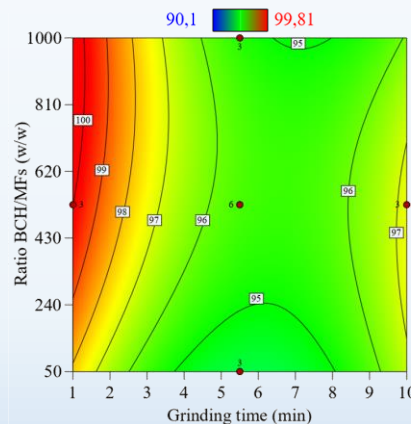
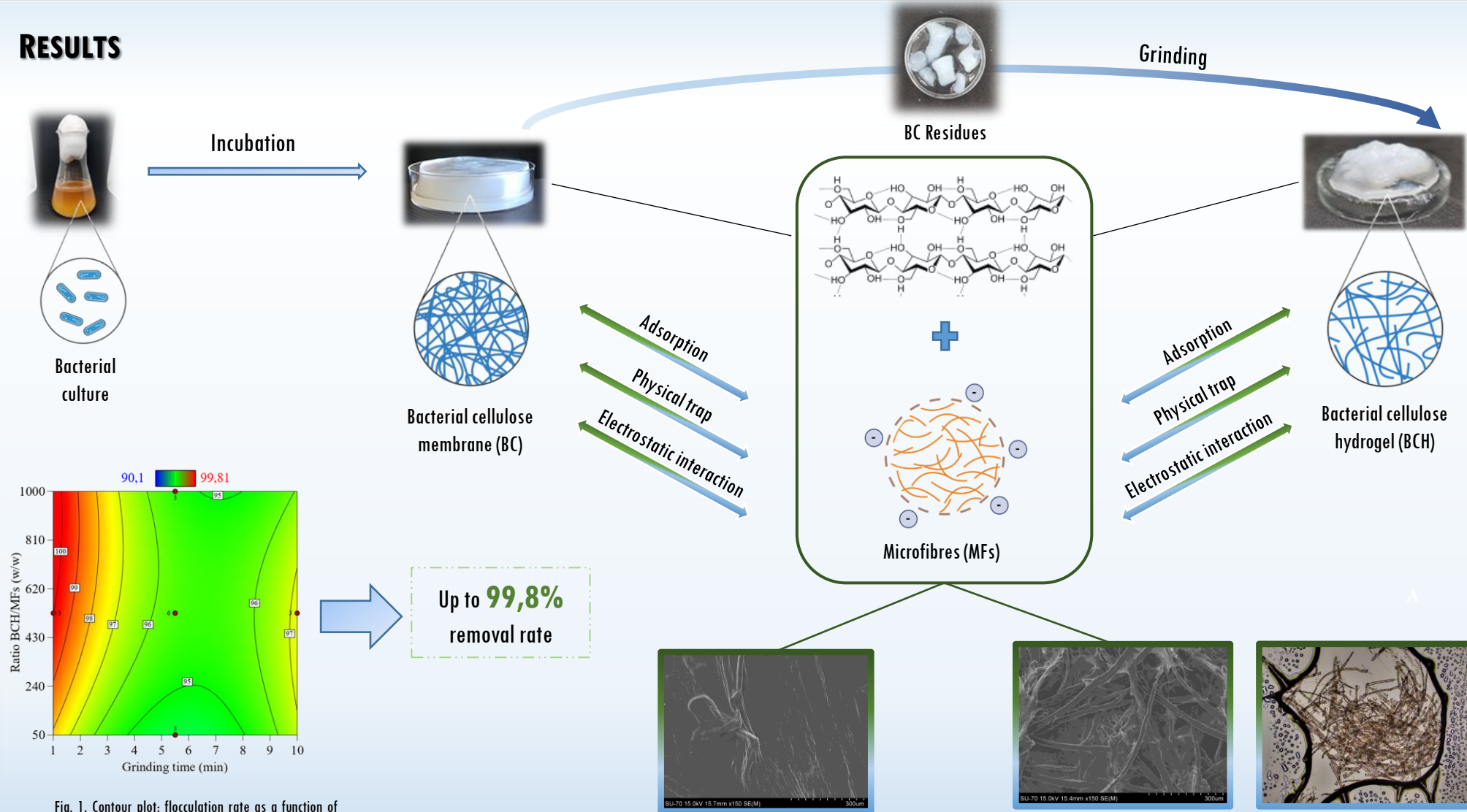


Fig. 1. Contour plot: flocculation rate as a function of the ratio and grinding times, with constant temperature (22,5°C) and immersion time (60 min).

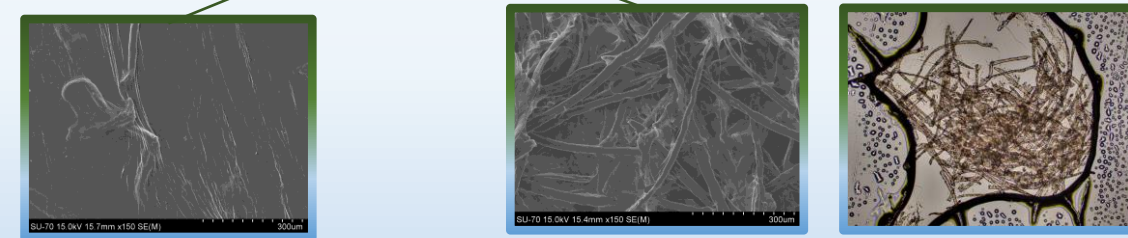


Fig 2. (A) MFs adsorbed and embedded in the BC membrane surface – SEM; (B) MFs adsorbed and embedded in the BCH - SEM; (C) BCH/MFs hetero-aggregate – fluorescence.