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Physicochemical Interactions between Rhamnolipids and

Pseudomonas aeruginosa Biofilm Layers

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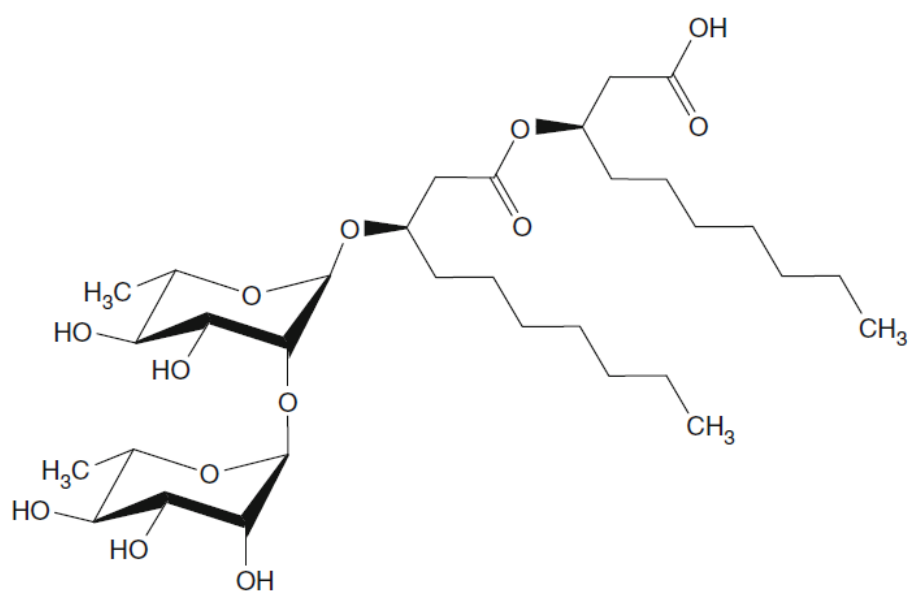
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Figure S1. The chemical structure of di-rhamnolipid (Rha-Rha-C_{10}-C_{10})[1]

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(A)

(B)

(C)

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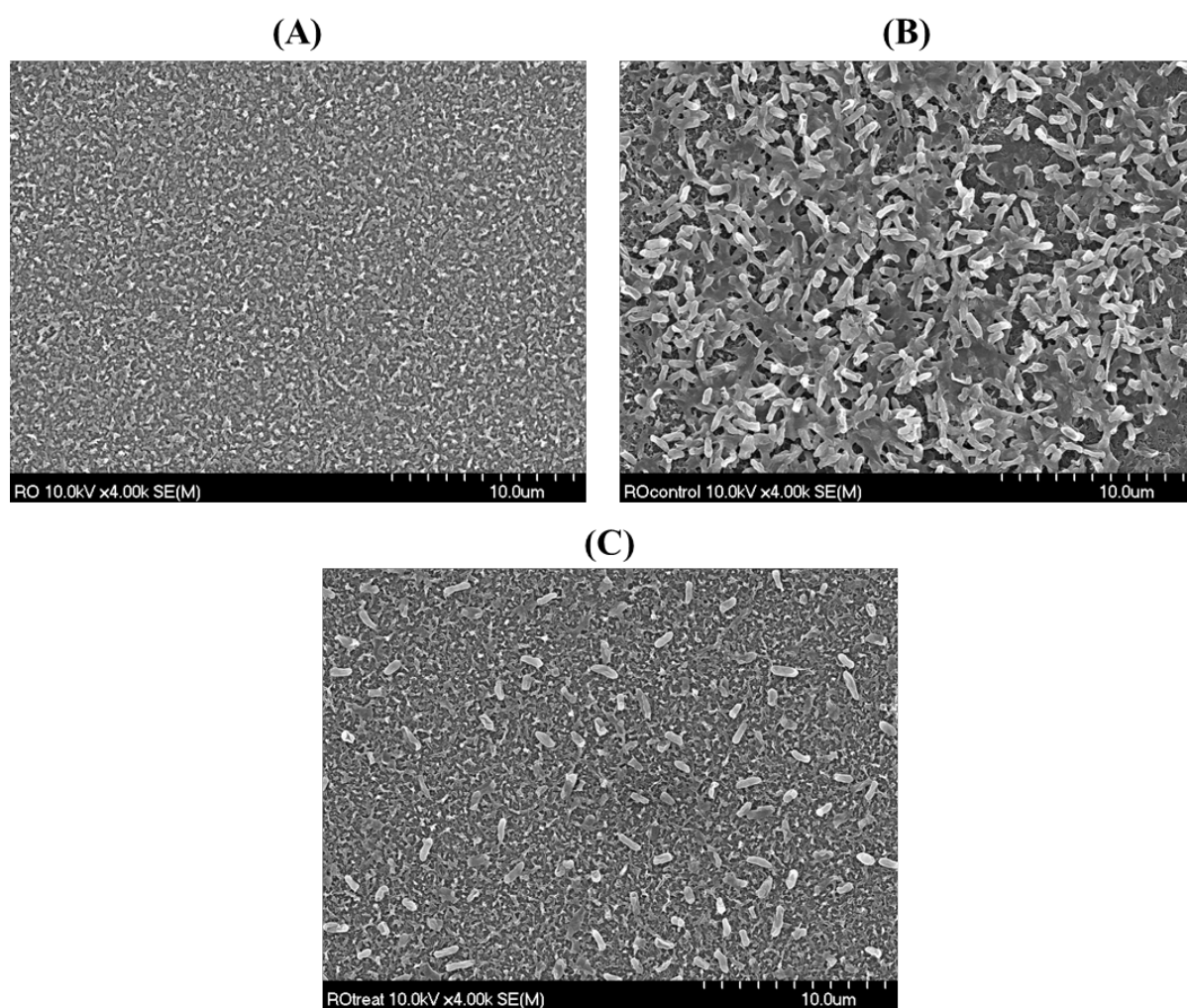47   Figure S2. SEM images of (A) virgin RO membrane (B) biofouled RO membrane (C)

48   rhamnolipid treated biofouled membrane. 100 μg mL^{-1} of rhamnolipid was treated for 2 h in

49   biofould membrane ($\times$ 4000).

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SI-1. Calculation of micelle aggregation number (N_{agg})

The N_{agg} of rhamnolipid was estimated as following the reference equations.[2] If quenchers are distributed among micelles according to the Poisson-Boltzmann equation, then the probability of finding n quenchers associated with a given micelle is

$$P_n= [<Q>^n/n!] \, e^{-<Q>}$$

Where $<Q>$ is the average number of quenchers in the micelles and [M] is the concentration of the micelles.

$$<Q>= [Q]/[M]$$

When we assume that fluorescence can be observed only for probes residing in micelles containing no quenchers at all, we write $I=P_0I_0$, where I_0 is the intensity in the absence of quencher. It follows that

$$I/I_0=e^{-<Q>}$$

Therefore, by plotting $\ln(I/I_0)$ vs [Q], a straight line with a slope of $[M]^{-1}$ should be observed. The mean aggregation number N can now be calculated, since $[M] = (C_D-CMC)/N$, in which C_D is the total surfactant concentration

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80   **REFERENCES**

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86   formed from poly(dimethyldiallylammonium-co-methyl-n-dodecyldiallylammonium) salts in

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