Determining biofilm growth amount (dry weight)

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DISCLAIMER

ABSTRACT

This protocol will help determine the amount of biofilm grown on carriers.

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IPTG induction

1 *Escherichia coli* grown overnight was diluted by LB to OD_{600}=0.4-0.6.

2 IPTG was added to cell culture to 1mM IPTG finally, and incubated 3h at 171 rpm, 37°C in orbital shaking incubator.

Sample preparation

3 For each bottle:
(1) The total mass of thirty Moving Bed Biofilm Reactor (MBBR) carriers were measured in advance by balance. Record all weights.
(2) Cells culture, thirty MBBR carriers and silver nitrate (to 6μM) solution were added into each bottle.
(3) Put all bottles into a 37°C incubator.

Prepare 3 flasks for each day and each sample (to minimize accidental error), so you may have, for example, 3 flasks for experiment group and 3 flasks for control group and you

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want to test for 5 days. This will eventually cost you 30 flasks in total.

Hot dry weight measurement

4 For each day,
(1) MBBR carriers were dried by oven at 60°C.
(2) Paddings were cooled to room temperature.
(3) Total mass of thirty MBBR paddings were measured.
Repeat steps above until weight did not change. Record the weight.

5 The variation of MBBR carrier mass could be calculated, thus indicating the accumulated biomass (biofilm) on the carriers.

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