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Determining biofilm growth amount (dry weight)

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Protocol status: Working

We use this protocol and it's working

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Abstract

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

Troubleshooting

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.

Note

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 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.