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Photo fermentative biohydrogen production potential using microalgae-activated sludge co-digestion in sequential flow batch reactor (SFBR)†

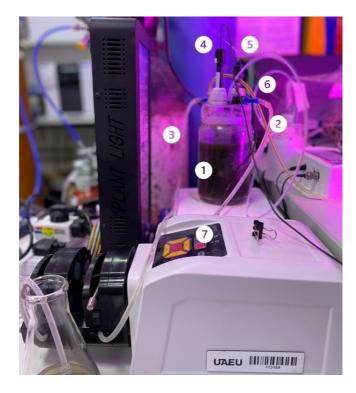
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## Figure S1



- 1. SFBR
- 2. Influent
- 3. Effluent
- 4. H<sub>2</sub> microsensor
  5. pH controller
  6. Gas port

- 7. Peristaltic pump

Figure S1.

Table S1. Nutrients for Z-medium

| Component                            | Stock Solution<br>(g/L dH <sub>2</sub> O) <sup>2</sup> | Quantity Used<br>(to 1 litre) |  |
|--------------------------------------|--|-------------------------------|--|
| NaNO <sub>3</sub>                    | 46.7   | 10 ml                         |  |
| $Ca(NO_3)_2.4H_2O$                   | 5.9  | 10 ml                         |  |
| K <sub>2</sub> HPO <sub>4</sub>      | 3.1  | 10 ml                         |  |
| MgSO <sub>4</sub> .7H <sub>2</sub> O | 2.5  | 10 ml                         |  |
| Na <sub>2</sub> CO <sub>3</sub>      | 2.1  | 10 ml                         |  |
| Fe-EDTA solution                     | see following recipe                                   | 0.2 ml                        |  |
| Trace metals solution                | see following recipe                                   | 0.08 ml                       |  |

## **Fe-EDTA solution**

| Component                            | Quantity Used (to 250 mL dH <sub>2</sub> O) |
|--------------------------------------|---|
| HCl (35%)                            | 2.2 ml                                      |
| FeCl <sub>3</sub> .6H <sub>2</sub> O | 4.5 g                                       |
| Na <sub>2</sub> EDTA                 | 4.65 g                                      |

## **Trace metals solution**

| Component  | Quantity Used (to 250 mL dH <sub>2</sub> O) |
|--|---|
| H <sub>3</sub> BO <sub>3</sub>                     | 0.775 g                                     |
| MnSO <sub>4</sub> .4H <sub>2</sub> O               | 0.4225 g                                    |
| Na <sub>2</sub> WO <sub>4</sub> .2H <sub>2</sub> O | 0.022 g                                     |
| $(NH_4)_6.MoO_{24}.4H_2O$                          | 0.0297 g                                    |
| KBr  | 0.044 g                                     |
| ZnSO <sub>4</sub> .H <sub>2</sub> O                | 0.0365 g                                    |
| $Co(NO_3)_2.6H_2O$                                 | 0.03125 g                                   |
| CuSO <sub>4</sub> .5H <sub>2</sub> O               | 0.0592 g                                    |
| $AlK(SO_4)_2.12H_2O$                               | 0.775 g                                     |

 $<sup>^{2}\,\</sup>mathrm{dH_{2}O}$  as deionized or distilled water

**Table S2. Nutrients for TAP medium** 

| Component                          | Amount Used (to 2 litre) | Stock Solution<br>Recipe               | Amount       |
|------------------------------------|--------------------------|--|--------------|
| Beijerinck's Solution              | 100 mL                   | -                                      |              |
|                                    |                          | NH <sub>4</sub> Cl                     | 8 g/L        |
|                                    |                          | CaCl <sub>2</sub> .2H <sub>2</sub> O   | 1 g/L        |
|                                    |                          | MgSO <sub>4</sub> .7H <sub>2</sub> O   | 2 g/L        |
| Phosphate Buffer Stock<br>Solution | 17 mL                    |  | -            |
|                                    |                          | Na <sub>2</sub> HPO <sub>4</sub>       | 11.62 g/L    |
|                                    |                          | KH <sub>2</sub> PO <sub>4</sub>        | 7.26 g/L     |
| Hunter's Trace Stock<br>Solution   | 2 mL                     |  |              |
|                                    |                          | Na <sub>2</sub> EDTA.2H <sub>2</sub> O | 50 g/L       |
|                                    |                          | $ZnSO_4.7H_2O$                         | 22 g/L       |
|                                    |                          | $H_3BO_3$                              | 11.4 g/L     |
|                                    |                          | MnCl <sub>2</sub> .4H <sub>2</sub> O   | 5.1 g/L      |
|                                    |                          | FeSO <sub>4</sub> .7H <sub>2</sub> O   | 5 g/L        |
|                                    |                          | CoCl <sub>2</sub> .6H <sub>2</sub> O   | 1.6 g/L      |
|                                    |                          | CuSO <sub>4</sub> .5H <sub>2</sub> O   | 1.16 g/L     |
|                                    |                          | $(NH_4)_6Mo_7O_{24}.4H_2O$             | 1.1 g/L      |
| Tris Acetate Stock<br>Solution     | 20 mL                    |  |              |
|                                    |                          | Trisma Base                            | 121 g/500 mL |
|                                    |                          | Glacial Acetic Acid                    | 50 mL/500 mL |