

# Supplementary Information File

All necessary information has been added according to its respective main document sections.

## 2. Materials and Methods

### 2.1. Sampling Sites



Figure S1. Study area map.

Study sites: Lahore, Pakistan

- 1- GCU botanical garden
- 2- Atta Baksh road 1
- 3- Atta Baksh road 2

## 2.2. Collection of Aquatic Plants

### When were the Aquatic plants collected for the study?

Aquatic plants were collected between November and December 2021 for isolation of bacteria and April–May 2022 for FTWs establishment and Malachite Green enriched industrial wastewater treatment.

### How many aquatic plants were collected?

- *Nymphaea* sp., ---→ 1 plant
- *Azolla filiculoides*---→ 2 to 3 grams
- *Pistia stratiotes* ---→ 1 plant
- *Spirodela polyrhiza*---→ 2 to 3 grams
- *Hydrocotyle vulgaris* -→ half a ft. patch
- *Eichhornia crassipes*---→ 1 plant
- *Lemna minor*---→ 2 to 3 grams
- *Hydrilla verticillata*---→ 1 from roots
- *Wolffia arrhiza*---→ 2 to 3 grams

### How was the sample (aquatic plants) created to be representative?

We have selected and used only those aquatic plants in our study that were either available at the botanical garden of Government College University, Lahore or were easily available as an indigenous aquatic flora of Lahore, Pakistan.

## 2.7.1. Lab Synthesis of MG Dye Enriched Industrial Wastewater

### Wastewater composition:

A total of 3L wastewater (of 100ppm dye concentration) was prepared for each FTWs treatment. Its composition is as follows:

- 0.3g MG dye +
- 48ml Hoagland solution [6x3ml of KNO<sub>3</sub> (1000 mM), 4x3ml of Ca(NO<sub>3</sub>)<sub>2</sub>.4H<sub>2</sub>O (1000 mM), 2x3ml of NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> (1000 mM) and 1x3ml of MgSO<sub>4</sub>.7H<sub>2</sub>O (1000 mM), 2x3ml of micronutrient stock solution and 1x3ml of NaFeDPTA (10% Fe)] +
- It was mixed well and volume was raised to 2800ml.

- pH was adjusted to 8.
- 100ml of bacterial inoculum was added.
- Lastly, volume was raised to make up a 3L MG enriched wastewater.

#### *2.10. Study of Physiochemical Parameters of Wastewater in FTWs*

##### **EC and TDS measurement:**

YSI EcoSense EC300 Conductivity Meter was used to measure EC and TDS values.

- EC Measurement range: 0.0  $\mu$ S to 200 mS
- TDS is determined by multiplying conductivity (mS) by a TDS factor. The default factor value is 0.65. TDS Constant Range is between 0.30 and 1.00.

### **3. Results**

#### *3.7. Enumeration of Bacterial Survival in Water*

**No enumeration of the bacteria in treatment T1 was provided** because aquatic plants were sterilized and similarly sterile distilled water was also used to prepared synthetic wastewater. The chances of bacterial contamination from environment are almost negligible. Hence, no enumeration of the bacteria in T1 treatment is provided.