

## Fungal Enzymes for Simultaneous Wastewater Bioremediation and Clean Energy

## **Our Technology Story**

Phenols, which are toxic, can be found in textile effluents in wastewater, and when released, can cause harm to aquatic organisms. Laccase, an oxidoreductase enzyme, can catalyse oxidation of phenols and reduction of water to detoxify dye effluents in wastewater, as well as simultaneously generate electricity due to the movement of electrons. Our project investigated the optimum concentration of dye effluents, and pH at which the reaction occurs at the highest rate.





## **Technology Features**

- This system is able to generate 20.1 mV of electricity at the optimum dye concentration of 20%.
- It generates 55.4 mV of electricity at the optimum pH of 3.0.

## **Potential Applications**

Singapore is an energy-scarce City in a Garden with few precious water resources. Our technology holds promises for optimisation in wastewater treatment such as textile effluent water and producing clean energy for household applications.



Filiae Melioris Aevi — Daughters of a Better Age.