Methods:

Steps of sewage water purification:

1) The water has been passed through a screen to remove large pieces of debris, sludges, and other solids.
2) The water has been passed through a box with a pump to aerate it to activate the bacteria for the next step.
3) The sludge has been collected from the water. Then, placed in a closed system "anaerobic digestion process" to produce methane, after that the sludge is used as organic fertilizer.
4) Moringa Oleifira crushed seeds have been added to the water in the dosages of 2g for one-liter sewage water to coagulate the impurities and sediments and perform its antimicrobial and heavy metal removal roles.
5) The solution has been stirred for 15 minutes then rested for one hour to collect the clear water.
6) The water has been passed through activated charcoal to remove the odor, taste, and color as a final step for the purification process.
7) At the end, the water had been filtered from charcoal by filter paper to reach the needed agricultural water standards.

Table 1. The materials used in the prototype

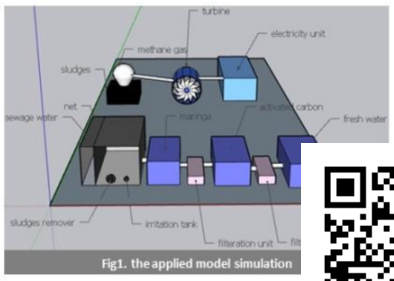

Fig1. the applied model simulation

Moringa for Sewage Water and Clean Energy

21519, Egypt

Although water makes up to 71% of the Earth's surface, only 0.5% is fresh. Fresh water resources are getting exhausted at an exponential rate due to environmental changes, as well as the lack of sustainable planning. This project addresses three of the United Nations Sustainable Development Goals (UN SDGs); Clean Water and Sanitation (SDG 6), Affordable and Clean Energy (SDG 7), and Zero Hunger (SDG 2). People living…

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