From Water Purification to Nutrient Supplementation: A Potential Zimbabwean Solution

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This project will demonstrate possible enhancing harvesting of algae using Moringa seeds as a flocculant. Microalgae yields of proteins and lipids demonstrating potential as food supplements and possible biofuels. The project started to examine the use of Moringa seeds for purification of water. A specific mass of Moringa seeds is added to untreated water to test the efficiency of bacteria removal. The flocculating property of Moringa will be used as a bioflocculant to reduce the use of synthetic flocculant materials, providing a safe harvesting method. Nutrients such as sodium bicarbonate and sodium chloride are added to the water to provide a suitable growing condition for Microalgae. After the cultivation of ten days, crushed Moringa seeds are added to the algae at different masses to a specific volume of growing solution of algae. The lipids from local algae were extracted using hexane and transesterified with methanol and potassium hydroxide. Experiments of Moringa seeds demonstrated effective removal of bacteria and high values of color, turbidity removal. Microalgae Chlorella and spirulina have died , therefore ,results from testing the use of Moringa seeds are not successful. Local algae species used in the experiment showed that there is hardly any lipid content in them. This study showed that it's quite difficult to carry out the cultivation of Microalgae in home areas. The local algae species showed its not a promising source for making biofuel. However, the Microalgae species (chlorella and spirulina) have proven in different countries as a reliable nutrient supplementation.

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