

**A STUDY OF THE PHYTOCHEMISTRY AND USE OF
MORINGA SPECIES SEEDS IN WATER PURIFICATION**

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ABSTRACT

To access clean water is a big challenge in the rural areas where there is no piped water and Kenyans have to use water from dams, boreholes or directly from the rivers. According to World Health Organisation, 16 million Kenyans lack access to clean water and 1.8 million people die from waterborne diseases. This research used seeds from *Moringa stenopetala* and *Moringa oleifera*, the commonly planted species from the Moringaceae family, to compare their effectiveness as coagulants used in water purification. Water samples from river Chania were collected and treated with dried seed extract. The samples were then subjected to microbiological testing and pH determination. The seeds were subjected to preliminary phytochemical study. Preliminary phytochemical studies showed that the seeds contain saponins, flavonoids, fixed oils and no anthraquinone glycosides. *M.stenopetala* contains alkaloids and no starch unlike *M.oleifera*. Extracts were prepared using hexane, dichloromethane, ethyl acetate and methanol; the percentage yield for *M.stenopetala* was 24.58%, 2.31%, 2.02% and 3.34% respectively while in *M.oleifera* the percentage yield was 7.89%, 3.34%, 8.33% and 6.63% respectively. Thin layer chromatography(TLC) was carried out using various solvent systems. TLC also revealed the presence of alkaloids in *M.stenopetala* and flavonoids in both. The water pH prior treatment was 6.96. After purification with *M. Oleifera* the pH was 6.54 and with *M.stenopetala* the pH was 6.60; hence both seeds increase the acidity of water. Microorganisms present in water before include *Escherichia coli* and *Salmonella typhi*. *M.stenopetala* was able to inhibit growth of *S.typhi* and not *E.coli*. *M.oleifera* inhibited both *E.coli* and *S.typhi*. In conclusion *M.oleifera* is a better water purifier due to its ability to inhibit bacteria growth in water and decrease water turbidity than *M. stenopetala*. Thus this experiment was successful, thus people in the local communities will be advised to use the seeds to purify water thus making it safe for drinking. This will maintain a healthier society and also eradicate poverty by planting more trees that can be used to improve the social economic status of Kenyans.

Key words: *Moringa stenopetala*, *Moringa oleifera*, river water, *Escherichia coli*, *Salmonella typhi*, Isiolo and Meru counties.