Antibacterial Activity of the Essential Oil of Xenophyllum poposum and of the Hydroalcoholic Extract of Xenophyllum poposum and Moringa oleifera versus Escherichia coli and Salmonella typhi in Tacna Sewage Water

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The purpose is to eliminate Escherichia coli and Salmonella typhi in wastewater so that its reuse does not contaminate, using medicinal plants such as Moringa oleifera and Xenophyllum poposum, a plant of the region. The active substance was obtained using Xenophyllum poposum essential oil and Xenophyllum poposum and Moringa oleifera hydroalcoholic extract. To know its inhibition halo, Kirby Bauer was performed, then the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC) of the extract and oil against Escherichia coli and Salmonella typhi were evaluated. The count of total heterotrophic microorganisms from the wastewater allowed the MBC to be checked, after analysis, together with the numbering of thermotolerant coliforms. The High Efficiency Liquid Chromatography (HPLC) test discloses the chemical components of the hydroalcoholic extract, and Gas Chromatography for essential oil. The results showed a greater antibacterial capacity of the hydroalcoholic extract and Xenophyllum poposum oil in the MIC and MBC tests against the two bacteria and a lower concentration with respect to the other active ingredients. In the count of heterotrophic microorganisms and the numbering of fecal coliforms the percentage of decontamination is 99.99% compared to the essential oil of Xenophyllum poposum. We conclude that Xenophyllum poposum has a greater bactericidal potential than Moringa oleifera, showing more potential in its oil, decontaminating 99.99% of heterotrophic and fecal coliform microorganisms in wastewater.

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