

**IN VITRO ANTIMICROBIAL ACTIVITY AND SAFETY OF MEDICINAL PLANTS
USED TO MANAGE *Samonella typhi*, *Campylobacter jejuni* AND *Shigella dysenteriae* IN
MERU COUNTY, KENYA**

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ABSTRACT

Plants have been used in the management of human enteric bacterial pathogens (that causes bacterial gastroenteritis) without scientific evaluation on their antimicrobial activity, safety and efficacy. The main goal of this study is therefore to evaluate *in vitro* antimicrobial activity of aqueous extracts of *Osyris lanceolata*, *Mimosa pudica* and *Zanthoxylum usambarense* and assess their safety using the rat's model. The aqueous extracts will be evaluated *in vitro* on their activity against gram-negative enteric bacteria (*Salmonella typhi*, *Camphylobacter jejuni* and *Shigella dysenteriae*) using the Agar Disk Diffusion Method, MIC, MBC and Time Kill Kinetics. The safety of the extracts will be assessed by administering orally and intraperitoneally aqueous extracts of the three plants at 450, 670 and 1000g/kg body weight daily to rats for 28days and recording the changes in body and organ weight, hematological and biochemical parameters and histopathology. The phytochemical composition of the aqueous plant extracts will be studied using standard qualitative and quantitative procedures and the mineral composition of the aqueous plant extracts will be assessed using Energy Dispersive X-ray fluorescence system (EDXRF). The obtained results will be expressed as Mean \pm SEM and analyzed statistically using ANOVA and POST-ANOVA to compare the means to aid in comparing Antimicrobial activity of the different plant extracts. The results obtained will be used to prepare scientific report on antimicrobial activity of *Osyris lanceolata*, *Mimosa pudica* and *Zanthoxylum usambarense* and the recommendations for continued use or otherwise will be made based on the outcome for the study. In addition, the outcome of the study may necessitate recommendations for further study on the management of bacterial gastroenteritis.