

Antimicrobial Activity of *Euclea divinorum* Hern (Ebenaceae) Leaves, Tender Stems, Root Bark and an Herbal Toothpaste Formulated from Its Ethanolic Root Bark Extract

Abstract

Aim: *Euclea divinorum* Hern (Ebenaceae) is a treasured East African medicinal plant which has a long use in the management of dental caries. However, there are few reports on the antimicrobial activity of its different parts used in oral care. The aim of this study was to compare the antimicrobial activity of organic extracts of *E. divinorum* leaves, tender stems and root bark against some oral pathogens and formulate an herbal toothpaste from its most active extract. **Place and Duration of the Study:** Leaves, tender stems and root bark of *E. divinorum* were collected from Elgueyo Marakwet Rift Valley located in the North Rift region of Kenya. The samples were analyzed at Moi University Chemistry Laboratory, Kenya between January 2020 and April 2020. **Original Research Article** Mbabazi et al.; IJRRD, 3(3): 8-16, 2020; Article no.IJRRD.59680 9 **Methodology:** Shade-dried samples were ground into powder and successively extracted with hexane, dichloromethane and ethanol. Antimicrobial activity of the extracts were determined by agar disc diffusion method. Minimum inhibitory concentration assay was performed for microorganisms that exhibited the highest sensitivity to ethanolic root bark extract (which had the highest recorded zone of inhibition diameters). The ethanolic root bark extract was used for the formulation of an herbal toothpaste. **Results:** The ethanolic extract of *E. divinorum* root bark was found to be the most active with minimum inhibitory concentration of 25, 50, 25 and 25 µg/ml for *Streptococcus pyogenes*, *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans*. Herbal toothpaste formulated with the ethanol extract of *E. divinorum* root bark had higher antimicrobial activity against the tested microorganisms compared to Colgate herbal toothpaste formulated with fluoride as the active ingredient. **Conclusion:** The current study supports the use of this plant in traditional management of dental caries and as chewing sticks in Kenya.

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