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MORPHOMETRIC AND HISTOLOGICAL EFFECTS OF AQUEOUS EXTRACT OF COSTUS AFER STEM JUICE ON CUTANEOUS WOUND OF ADULT ALBINO RATS

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Skin regeneration is a major challenge of adult mammals that has only been overcome with elaborate and expensive procedures. This calls for the search for cheaper and readily available wound regeneration products. Thus, this study was to investigate the wound healing potential of costus afer stem juice which has been shown to contain pro-healing biomolecules and minerals. The study was carried on twenty-five adult female albino rats weighing between 243-320g. The rats were divided into 5 groups of group A without treatment; group B, treated only on the first day with iodine ointment; group C, treated for 7 days with iodine ointment; group D, treated only on the first day with costus afer paste; and group E, treated for 7 days with Costus afer paste. They were wounded on their dorsum under ketamine hydrochloride anaesthesia and were treated according to their groups upon haemostasis. Rate of contraction and re-epithelialization were evaluated digitally. The tensile strength of healed skin was measured using a tensiometer. Samples of the healed tissue were collected for H&E and Masson's trichrome histological assessment. It was found that groups D and E wounds treated with costus afer extract maintained an uninfected moist wound environment despite being open to the atmosphere. The rate of re-epithelialization was significantly highest in group D which also had a significantly highest tensile strength of 692.2g at $p < 0.05$. There was no significant difference in the rate of contraction. H&E and Masson's trichrome sections showed randomly organized collagen fibres in groups D and E. There was also indication of growing hair follicles in group D. In conclusion, aqueous extract of costus afer stem prove to be more effective in wound healing than iodine. With advanced investigations, it could provide a convenient, common and affordable wound healing agent that can lead to skin regeneration.

BIOGRAPHY

Kudighe Patrick Udoh is a lecturer with the University of Uyo Teaching Hospital, Nigeria. She obtained her BSc. Anatomy and MSc from the University of Uyo. She is a passionate educator and researcher with research interest in tissue regeneration. She seeks to discover natural remedies that can be used effectively for regeneration of loss tissues. Her present work discovered a plant product that maintains an open moist wound environment and drives the healing process towards skin regeneration. She has publications in many journals and she is open for research collaboration.

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