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The effect of *Eucomis autumnalis* osteogenic markers *in vitro*

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Medicinal plants have been used to treat diseases since time immemorial. South Africa is rich in natural medicinal resources and it has been estimated that over 60% of South Africans make use of medicinal plants that they obtain from traditional healers. The genus *Eucomis* is endemic to southern Africa and is part of the Hyacinthaceae family. Of the ten species within the genus, *Eucomis autumnalis* (Mill) Chitt Subspecies *autumnalis* is the most commonly used herbal remedy for postoperative recovery and the treatment of bone fractures. Its vernacular name is Umathunga, literally meaning 'to sew (bone) together'. Fracture non-union occurs when a fracture has not healed within the expected period and is not expected to heal without intervention. Expensive treatment is required and is usually associated with multiple surgical procedures, prolonged hospital stay, pain and functional disability. This greatly increases the burden on the health care systems of developing countries. Bone morphogenetic proteins have been used to treat non-union, but they are associated with high cost and the risk of ectopic bone formation in some patients. Medicinal plants may provide a safe and cost effective alternative treatment for fracture non-union, decreasing the time it takes for the patient to return to full activity. No studies have been found investigating the potential osteoinductive activity of *Eucomis autumnalis* in C2C12 cells, a mouse myoblast cell line. The main aim of this study is to scientifically investigate the effect that *E. autumnalis* has on osteogenic markers.

Biography

Nolutho Mkhumbeni is an Immunology and Hematology Lecturer at Vaal University of Technology (VUT). She holds a Master's degree in Biotechnology and has received the Vice Chancellor's Award at VUT for obtaining the highest score in the faculty. She is currently a Doctoral candidate at the Tshwane University of Technology (TUT) in Biomedical Technology. Her research interests lie in South African indigenous knowledge systems, specifically medicinal plants and their scientific validation and potential application in tissue engineering and bone regeneration. She is a recipient of the National Research Foundation (NRF) Thuthuka Research Grant for her doctoral research.

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