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Poster(Non-Competing)

Study On Flaxseed Crude Extract On Stem Cells From Human Exfoliated Deciduous Teeth (SHED)

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Introduction: Flaxseeds offer a wide range of pharmacological properties including antioxidant, antibacterial and anticancer. However its effect on mesenchymal stem cells has not been elucidated. Thus, this study aimed to determine the effects of flaxseed crude extract on stem cell from human exfoliated deciduous teeth (SHED) in terms of cell viability, morphology and proliferation activity. **Materials and Methods:** Whole flaxseeds were ground and extracted with absolute ethanol using soxhlet extractor. The effects of flaxseed on SHED were assessed for cell viability using MTT assay, cell morphology using inverted microscope and proliferative activity describe as population doubling time (PDT) using alamar Blue assay. Fatty acid composition of flaxseed was analysed using gas chromatography-mass spectrometry (GCMS) instrumental technique. **Results:** The effects of flaxseed on SHED were observed to be dose-dependent, where higher concentration of the extract resulted in lower cell viability. The concentration of the flaxseed required to inhibit 50% of cell viability (IC50) was 10.56±0.22 mg/ml. Morphological observation demonstrated that flaxseed altered the cell morphology at concentration above 8 mg/ml. Based on alamarBlue assay, SHED treated with flaxseed at concentration 0.5, 1, 2, 4, 8, 10.56 mg/ml showed no significant difference of PDT when compared to control ($p>.05$). GCMS analysis revealed the presence of linolenic acid as major compound, linoleic acid and palmitic acid and oleic acid. **Conclusion(s):** Crude extract of flaxseed at concentration below 8 mg/ml may be applied in the future study of SHED. The linolenic acid in flaxseed may have been responsible for the cell viability and proliferation activity of SHED.

KEYWORDS: flaxseed crude extract, SHED, cell viability, population doubling time, GCMS.