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Molecular evidence of wound healing potency of lyophilized powder of *Ziziphus rugosa* Lam. leaf extract

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Ziziphus rugosa Lam. (Fam. Rhamnaceae) is a medicinal plant that is commonly used in ethnobotanical and traditional practices for the treatment of wounds, burns, and ulcers. Despite traditional claims for medicinal efficacy of the plant in wound healing, there is no clear scientific data to support the claim, neither *in vivo* nor *in vitro*. Every traditional or folklore type of medicine requires extensive scientific research at cellular and molecular level in order to formulate potent pharmaceuticals suitable for human consumption. Here, we determined the wound healing potency of *Z. rugosa* using *in vitro* scratch wound assay experiments using rat L6 pre-myoblast cells treated with different concentrations of *Z. rugosa* leaf extract (ZLE). The viability of cells treated with test extract was assessed by MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide) assay. The concentration and expression fold of Transforming growth factor β1 (TGF-β1), an important marker gene in wound healing was analysed by qPCR based on the wound closure observed in scratch wounds. MTT assay revealed that cell viability is not affected on a notable manner on treatment with ZLE. The data obtained from scratch wound assay clearly indicates that ZLE treatment improved cell survival, proliferation and migration in scratch wounds, leading to wound closure. The rate of closure of wounds was significant (P <0.05) in tested concentrations of ZLE when compared to untreated control cells. When compared to control, the concentration of the marker gene TGF-β1 increased significantly (P <0.05) in cell line cultures of rat L6 cells treated with different concentrations of ZLE. Similarly, the expression fold of the gene was found to be significantly higher (P <0.05) in cells treated with ZLE than in control cells. ThisThis study at cellular and molecular level strengthens *Z. rugosa*'s potential as a herbal medicine for wound treatment. Further research is required to determine the optimal dosage for the treatment of wounds.

Keywords: β-Actin, Cheruthudali, Chunna fruit, Kottamullu, Malamthudali, Traditional medicine, Transforming growth factor β1, Wild jujube, Zunna berry