Fish & Snips: Facilitating Wound Healing through Tilapia Collagen Dressing

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Majority of the collagen used for commercial products are extracted from cow and pig skins. However, with the emergence of fish collagen as a potential option of wound healing, tilapia skin has been receiving much attention for being used to heal burns by Brazilian doctors. The purpose of the experiment is to explore tilapia skin as a relatively safer source of collagen for wound dressings and scaffolds. With a lower cost and a simpler preparation process, tilapia tissue would be able to make medical treatments more affordable and accessible to all, with much less religious restrictions against fish derived products compared to bovine and porcine products. By using waxworms- larvaes of Galleria mellonella as a model organism for tissue fibrosis- acid solubilized collagen was used to form scaffolds on incisions to test the ability of tilapia collagen to heal wounds. With heparin and IL- 13 mixed into the scaffold, the ability of the dressing to be inclusive of other medicine for inducing tissue fibrosis was tested with additional solutions mixed with it. ELISA assays on TGF Beta and Tenascin C was used as means of finding quantitative indicators of wound healing while microscopes were used for qualitative assessment of the reduction of wound size, leading to tilapia collagen dressing with heparin being the most efficient in wound healing.

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