The Use of Aloe vera and Silver Nanoparticles in Wound Healing

Burkey, Dylan (School: Rockdale Magnet School for Science and Technology)

Traumatic injury accounts for over 150,000 deaths per year, and millions of non-fatal injuries per year (Connoway, 2020). Additionally, out of the 1.1 million burn victims admitted to US hospitals last year, roughly 20% of these victims required a skin graft to prevent any fatal or long-term damage (McDermott, et. al, 2017). Due to economic and practical weaknesses, researchers have been looking for viable methods that can effectively heal trauma injuries. The purpose of this research is to use Aloe Vera and Silver Nanoparticles to effectively heal cut wounds on Planaria. Different levels of aloe vera and silver nanoparticles were applied to the wound sites of planaria with the addition of a micro dosage of Bacitracin Zinc to assist in boosting results, including 25ml, 50ml, 75ml, and 100ml applications of Aloe Vera, 250mg, 500mg, 750mg, an 1000mg applications of Silver Nanoparticles, and two control groups, a 20g dosage of Bacitracin Zinc and zero dosage group. The data was collected in four areas: regeneration time, growth rate, total growth, and additional trends over a time period of 16 days, collecting data every four days. After data was collected, the most efficient method for STEM cell regeneration was determined. The Aloe Vera test group had the overall highest Growth Rate of 3.066 mm. The group with the highest total growth was the 100ml Aloe Vera with 6.7 mm. This research shows that Aloe Vera and Silver Nanoparticles are effective in healing wounds and have a promising outlook on skin graft applications.

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