

THERAPEUTIC PROPERTIES OF *Acavus* SNAIL MUCUS IN BURN WOUND CARE: A TRADITIONAL REMEDY REVISITED THROUGH SCIENTIFIC INQUIRY

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Natural substances play a vital role in traditional medicine, serving as a foundation for drug discovery. While plant-based remedies have been extensively studied, animal-derived substances have gained less attention for their pharmacological potential. However, snail mucus has emerged as a promising remedy for burn-wound management due to its hydrating, cooling, antimicrobial and potential wound-healing properties. In Sri Lankan traditional medicine, *Acavus* snail mucus is applied to burns, where it is believed to promote healing and minimise scarring. However, its therapeutic properties remain underexplored. This study investigated the antimicrobial, physicochemical, and biochemical properties of *Acavus* snail mucus, focusing on its potential for burn-wound healing. The cooling property was assessed by determining water content, specific heat capacity and density, and comparing these with *Aloe vera* gel, *Achatina* snail mucus, and silver sulfadiazine cream. Antimicrobial activity was tested against *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Enterococcus faecalis* and *Candida albicans*, using the well-diffusion method. Biochemical analyses included protein quantification (OD280), molecular characterisation via Fourier transform infrared (FTIR) spectroscopy, and pH determination. *Acavus* mucus had a high-water content of 99.053±0.0361% ($p > 0.05$), and a specific heat capacity of 4.221±0.050 kJ kg⁻¹ °C⁻¹ comparable to that of *Aloe vera* (3.945±0.336 kJ kg⁻¹ °C⁻¹; $p > 0.05$), supporting its cooling properties. Its density (0.986±0.002 g mL⁻¹) was significantly higher than that of *Aloe vera* and *Achatina* mucus ($p < 0.05$). No antimicrobial activity was observed under tested conditions. The UV absorbance peaked at 277.5 nm, indicating the presence of aromatic amino acids. FTIR analysis confirmed the presence of proteins (11.635 mg mL⁻¹) and identified amide bands I, III and A, indicative of peptide bonds and protein secondary structures. The mucus was alkaline with pH 8.26±0.015. These findings support *Acavus* mucus has hydrating and cooling properties with some bioactive compounds at play. Although antimicrobial activity was absent, its potential antioxidant and anti-inflammatory properties warrant further investigation to validate its traditional use in burn-wound care.

Keywords: *Acavus* snails, Burn wound healing, Cooling property, Snail mucus, Traditional medicine