The Characterization of a Phenolic-Protein Conjugated Patch as an Antimicrobial Agent to Prevent Infections in Wounds

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In the past decade, the implementation of phenolic compounds with collagen-based biomaterials has gained increasing attentions (Liu, et. al., 2019). Phenolics have been studied as collagen modifiers and it cross-link transform both into antibacterial agents (Kaczmarek & Mazur, 2020). Infections caused by bacteria are one of the main causes of mortality in the world and the growing resistance to antibiotics makes it a serious global problem (Carpa, et. al., 2022). It's necessary to find an effective modifier that can act as a crosslinking biopolymer that exhibits antimicrobial properties (Liang, et. al., 2022). That is why the researcher pursued the development of an antibacterial conjugated patch with a cross-link of Curcuma longa (turmeric) as the phenolic component with collagen peptide to prevent infections in wounds and asserted it as an effective antimicrobial. The patch was created using a machine in which water, a collagen tablet and turmeric pure extract were solidified into a jelly- like sheet by a heating process. To test the antimicrobial action, 5 blood agar petri dishes were labeled, inoculated, and incubated for 24 hours for bacterial growth. Then, a piece of gauze or patch was placed in the respective dish and sent to incubation for 24 hours at 37oC. Based on the results obtained, the hypothesis was retained. The antibacterial conjugated patch served as an effective antimicrobial alternative, eliminating the bacterial colonies. Which represents an option to treat infections in wounds and prevent future health complications. Future research should consider modifying the conjugate patch into an adhesive bandage.

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