



A comparative analysis of the influence of pH and the nature of ingredients surrounding an aloe vera gel on aloe vera antimicrobial efficacy

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Abstract:

Statement of the Problem

The nature of ingredients surrounding an aloe vera gel doesn't influence its antimicrobial efficacy like the pH of its surrounding.

Objective

To make a comparative analysis of the influence of pH and the nature of ingredients surrounding an aloe vera gel on aloe vera antimicrobial efficacy.

Methodology

Two solutions (2% and 4%) of an acidic bath gel, having pH 5.5 and containing aloe vera gel, were subjected to antibacterial screening using agar well diffusion method. The dilutions of *Staphylococcus Aureus* and *Escherichia Coli* as the test organisms were added to bored cylindrical wells containing solidified agar.

The solutions were then added to the well. The prepared plates were incubated at 37°C for 24 to 48 hours. Antimicrobial activity was recorded in millimeters of the clear zones surrounding the wells.

A study by Prakash et al in 2012 showed that the diameters of the clear zones of inhibition of *Staphylococcus Aureus* and *Escherichia Coli* using pure aloe vera extract in 30% ethanol-water solution were 24mm for both organisms.

Findings

The 4% solution, after 48 hours, gave diameters of the clear zones of inhibition of *Staphylococcus Aureus* and *Escherichia Coli* to be 33mm and 25mm respectively, which are higher diameters than the ones recorded in pure aloe vera extract in 30% ethanol-water solution.

Conclusion and significance

Within the limits of this study, it can be concluded that



pH is a more important factor than nature of ingredients surrounding an aloe vera gel, in influencing the antimicrobial potency of aloe vera gel.

Recommendations

Skincare product formulators and developers should pay more attention to pH than the nature of the ingredients in influencing the antimicrobial potency of an aloe vera gel.

Biography:

David Ferdinand Uche is a formulation and development chemist in the personal care and cosmetics and homecare in addition. He works for a private firm in his field in Abuja, Nigeria.

He helps individuals, associations, organizations and firms formulate, reformulate and improve brands that increase market shares.

He had been invited as a speaker in webinars like 21st international summit of International Journal of Industrial and Environmental Chemistry, London, UK and to write an article for EuroCosmetics Magazine. He has been on the database of CAS - a division of American Chemical Society since June 2020 till now as one of her user research study surveyors.

Publication of speakers:

1. Mercola J.(2010). Bath and Shower products, pp.2 Npic.orst.edu,(2010).Antimicrobialfactsheets(Online) Available at http://www.Npic.orst.edu/Antimicrobials_factsheets (Accessed 21 Apr. 2016).

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