

POSTER PRESENTATION ABSTRACT

ACOS24-P-009: Evaluating the Antimicrobial Potential of Pyroligneous Acid from *Rhizophora apiculata* against *Aspergillus niger* and *Candida albicans* for Disinfectant and Antiseptic Applications

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The rising demand for natural antimicrobial agents in cosmeceuticals and aesthetic products has prompted research into alternatives to synthetic disinfectant and antiseptic. This study investigates the antimicrobial efficacy of pyroligneous acid, derived from *Rhizophora apiculata*, against *Aspergillus niger* and *Candida albicans*, pathogens commonly found in personal care and cosmetic formulations. Method: The study employed the EN 1275 quantitative suspension test to evaluate the fungicidal and yeasticidal effectiveness of pyroligneous acid over various contact times. The microbial reduction was assessed through colony-forming units per millilitre (CFU/ml) and log reductions, quantifying the reduction in pathogen viability over time. Results and Discussion: Results indicated that pyroligneous acid achieved significant fungicidal activity, with >99.999% reduction in *Aspergillus niger* ATCC 16404 and *Candida albicans* ATC 10231 within a 3-minute contact time. The findings underscore pyroligneous acid's high efficacy as a natural antimicrobial agent, showcasing potential for integration into cosmetic products to mitigate contamination risks. Conclusion: Pyroligneous acid presents a viable, eco-friendly solution for enhancing the safety profile of aesthetic and cosmeceutical products. This study contributes to advancing sustainable preservation methods within the personal care industry.

Keywords: Pyroligneous acid, Antimicrobial agent, Cosmeceuticals, Natural disinfectant and antiseptic, EN 1275.