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Varying Concentration Effects of Geraniol Microcapsules Coating on the Comfort Properties of Fabrics

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Structured Abstract

Background: The growing demand for fabrics incorporated with microcapsules offers added benefits such as antimicrobial activity or fragrance, while maintaining acceptable comfort properties for daily use. However, the implementation of functional finishes like geraniol microcapsules can manipulate fundamental features of comfort and absence of complete knowledge on how various proportions coating concentrations influence air permeability, water vapour transmission and moisture control can be a major challenge to be tackled as indicated in the problem statement. Thus, the research was performed with two primary purposes, which first, is to identify the impact of the geraniol microcapsule coating at varied concentrations on the air permeability and rate of water vapour transmission (WVP) while second, is to assess the effect of these coating on the moisture management properties of cotton fabric.

Methods: To realize these goals, a series of tests which concerned the comfort aspect were experimental run among those sample such as air permeability testing, WVP testing and Moisture Management Test (MMT) which were conducted under 1, 3 and 5 percent concentration of geraniol microcapsules as well as on a control material.

Results: The findings showed that higher concentration of coating tended to produce lower air permeability by partially blocked pores meanwhile a small percentage change in WVP with increased coating density and a high percentage of moisture management at high coating concentration are measured as better in OMMC values. The lower concentrations were found to be better preserved as breathable, whereas the higher concentrations were better with Objective 1, and the best balance was 1% whereas more effective with Objective 2 is at 3%.

Conclusion: To sum up, the results show that the design of geraniol microcapsule coatings can be enhanced to provide both practical and wear-based performance, thus, the desired result will be an active wear, daily use, domestic and medical related textiles product with increased value added by microencapsulated functionality.

Keywords: Geraniol, Microcapsule, Comfort Properties, Concentration

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