Synopsis of Original Research Paper

Fabrication of Adhesive and Transparent Nanosheets and Their Control of Fragrant and Deodorant Abilities

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Fragrant products have been paid much attention to improvement of quality of life. However, their effect is often insufficient due to flowing by sweats and short-term evaporation of odor molecules. We have proposed polymer ultra-thin films (often called nanosheet) with a film thickness of nanoscale. These nanosheets have shown an excellent adhesiveness on various interfaces via a physical adsorption. In this study, we proposed freestanding polysaccharide nanosheets and nanofibers and evaluate their control of fragrant and deodorant ability. For fragrant materials, free-standing crosslinked chitosan nanosheets carrying cyclodextrin (CD) were successfully fabricated by a spin-coating process. When linalool as a model was dropped on the CD nanosheets, volatilization of linalool was prolonged compared to the control. This prolonged effect of β-CD-nanosheet was higher than that of γ-CD-nanosheet. This result indicates the volatilization of linalool was controlled by β-CD on CS nanosheets. For deodorant materials, free-standing crosslinked nanofiber-sheets composed of chitosan were successfully fabricated by electrospinning, crosslinking, and sacrificial layer process. The obtained nanofiber-sheet were still transparent, and easily adhered onto skin. Based on detection of the amine groups using fluorescamine, *trans*-2-nonenal, which is a causative compound of the aged body odor, could be covalently bound via amino groups of chitosan-nanofiber-sheets.