

Edible Nanocoating of Dextran/Lipid and Curcumin for Enhanced Shelf Life of Fresh Produce

[Sana Kabdrakhmanova](#), [Robin Augustine](#), [Aiswarya Sathian](#), [Annu Thomas](#), [Tomy Muringayil Joseph](#), [Nandakumar Kalarikkal](#), [Zhanar Ibraeva](#), [Beisebekov Madiyar](#), [Sabu Thomas](#) ... [See all authors](#)

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ABSTRACT

The purpose of the present study was to develop a nano-coating for fresh vegetables and fruits using a combination of curcumin, sesame oil, stearic acid, and dextran (CSSDNs). The anti-bacterial and nontoxic nature of nanoparticles were tested against Gram-positive bacteria (*Staphylococcus aureus*) and human fibroblast cells. Enhanced aqueous solubility of curcumin and its stability in the bloodstream were observed from the in vitro blood compatibility studies. The anti-cancer activity of curcumin-loaded nanoparticles was tested against SK-BR3 cells, demonstrating excellent antitumor activity. These findings indicate that the CSSDNs system can be used as an edible coating with strong antibacterial properties and as an effective means of delivering curcumin, which has proven to be successful in treating or preventing cancer.

Graphical Abstract

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author.
The data are not publicly available due to privacy or ethical restrictions.