

T NG H P XANH H T NANO B C T D CH CHI T NHA AM VÀ NG D NG TRONG T O MÀNG CHITOSAN CH A V T TH NG

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Tóm t t

T ng h p xanh nano b c là m t trong nh ng ph ng pháp ang c quan tâm hi n nay. Trong nghiên c u này, d ch chi t nha am c s d ng ng th i nh tác nhân kh và tác nhân n nh t o h t nano b c (silver nanoparticles-AgNPs). H t nano b c t o thành c k t h p v i chitosan (CS) t o màng membrane bionanocomposite v i m c tiêu làm t ng kh n ng kháng khu n c a màng b ng v t th ng. K t qu cho th y màng bionanocomposite t o thành t dung d ch chitosan 3 wt% k t h p v i dung d ch AgNPs t l AgNPs:CS 1% v/v, có kh n ng h p thu dung d ch m phosphate 52.8 %, t c truy n h i n c qua màng kho ng $6.4 \cdot 10^{-4} \text{g/mm}^2 \cdot \text{ngày}$ và màng có kh n ng kháng *E. Coli* và *S. Aureus*.

T khóa: màng ch a v t th ng, chitosan, bionanocomposite, nha am, nano b c, ho t tính kháng khu n.

GREEN SYNTHESIS OF SILVER NANOPARTICLES FROM ALOE VERA EXTRACT AND THEIR APPLICATION IN CHITOSAN WOUND DRESSING

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Abstract

Synthesis silver nanoparticles by green synthesis has been attracted many attention recently. In this article, aloe vera extract (AVE) are used as both the reduced agent and the stabilized agent to synthesis silver nanoparticles (AgNPs). The AgNPs were then incorporation with chitosan (CS) to induce bionanocomposite membrane in order to enhance the antibacterial of the wound dressing. The results showed that bionanocomposite membrane which was formed by incorporation of chitosan solution 3 wt% and AgNPs solution at AgNPs:CS ratio of 1% v/v exhibits the phosphate buffer adsorption of 52.8%, the water vapor transmission rate of $6.4 \cdot 10^{-4} \text{g/mm}^2 \cdot \text{day}$ and the membrane have antibacterial activity on *E. Coli* and *S. Aureus*.

Key words: Wound dressing, chitosan, bionanocomposite, aloe vera, silver nanoparticles, antibacteria activity.