

INTISARI

FABRIKASI DAN KARAKTERISASI *POLYVINYL ALCOHOL* (PVA) DENGAN *CHITOSAN/TERMINALIA CATAPPA* SEBAGAI PEMBALUT LUKA ANTIBAKTERI BERTEKNOLOGI NANOFIBER

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Telah dilakukan fabrikasi dan karakterisasi *nanofiber* PVA dengan penambahan *Terminalia catappa* dan *Chitosan*. Penelitian ini dilakukan sebagai upaya meningkatkan respon restoratif alami dari sifat antibakteri *Terminalia catappa* yang digunakan untuk pembalut luka *nanofiber*. Tujuan dari penelitian ini diantaranya menentukan konsentrasi penambahan *Terminalia catappa* yang optimal, hasil karakterisasi dari *nanofiber* yang dihasilkan, serta aktivitas antibakteri dari penambahan *Terminalia catappa* dan *Chitosan*. Variasi konsentrasi penambahan *Terminalia catappa* sebesar 5, 10, dan 15 w/v% pada fabrikasi *nanofiber*. Setelah dilakukan fabrikasi, dilanjutkan tahap *electrospinning* dengan tegangan 12 kV. Pada setiap variasi konsentrasi yang ditambahkan, dilakukan karakterisasi SEM dan FTIR serta dilakukan uji kuat tarik dan uji *in vitro* menggunakan bakteri *S. aureus* dan *E. coli*. Hasil penelitian ini menunjukkan *nanofiber* dengan penambahan konsentrasi *Terminalia catappa* paling optimal adalah 15 w/v% untuk *nanofiber* PVA-*Terminalia catappa* dan PVA-*Terminalia catappa*-*Chitosan*. Selain itu, adanya gugus fungsi C=O serta hasil uji kuat tarik yang berbanding lurus seiring bertambahnya konsentrasi *Terminalia Catappa*. Hasil uji antibakteri terlihat zona hambat lebih besar pada *nanofiber* PVA-*Terminalia catappa* 15 w/v% dibandingkan *nanofiber* PVA-*Terminalia catappa*-*Chitosan* dengan konsentrasi yang sama.

Kata kunci: Antibakteri, *Chitosan*, *Electrospinning*, *Nanofiber*, PVA, *Terminalia catappa*

ABSTRACT

FABRICATION AND CHARACTERIZATION OF POLYVINYL ALCOHOL (PVA) WITH CHITOSAN/TERMINALIA CATAPPA AS NANOFIBER WOUND DRESSING WITH ANTIBACTERIAL PROPERTIES

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*Fabrication and characterization of PVA nanofibers with the addition of Terminalia catappa and Chitosan have been conducted. This research was carried out to enhance the natural restorative response of the antibacterial properties of Terminalia catappa used for in nanofibers wound dressings. The study's objectives include determining the optimal concentration of Terminalia catappa addition, characterizing the produced nanofibers, and evaluating the antibacterial activities of the additions of Terminalia catappa and Chitosan. The nanofiber fabrication used various concentrations of Terminalia catappa addition, namely 5, 10, and 15 w/v%. After fabrication, the electrospinning stage was carried out with a voltage of 12 kV. SEM and FTIR characterizations were performed for each added concentration variation, and tensile strength and in vitro tests were conducted using *S. aureus* and *E. coli* bacteria. The results of this research indicate that the nanofibers with the most optimal addition concentration of Terminalia catappa are at 15 w/v% for both PVA-Terminalia catappa and PVA-Terminalia catappa-Chitosan. Additionally, the presence of the C=O functional group and the tensile strength test results showed a proportional increase with the concentration of Terminalia Catappa. The antibacterial test results showed a larger inhibition zone in PVA-Terminalia catappa 15 w/v% nanofibers compared to PVA-Terminalia catappa-Chitosan with the same concentration.*

Keywords: Antibacterial, Chitosan, Electrospinning, Nanofiber, PVA, Terminalia catappa