ABSTRAK

UJI AKTIVITAS ANTI BAKTERI NANO ZnO DAN ZnO/Ag MENGGUNAKAN EKSTRAK DAUN KELOR

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Telah dilakukan sintesis nano-ZnO dari daun kelor menggunakan metode *green synthesis* yang divariasikan menjadi 2 jenis yakni, ZnO dan ZnO/Ag dari daun kelor. Penelitian ini bertujuan untuk mengetahui morfologi dan ukuran nanopartikel serta aktivitas antibakteri dari ZnO dan ZnO/Ag dari daun kelor. Proses sintesis dilakukan melalui tiga tahap yakni, ekstraksi daun kelor, sintesis nano-ZnO, dan karakterisasi menggunakan *X-Ray Diffraction* (XRD), uji antibakteri menggunakan bakteri E.coli, dan karakterisasi SEM. Hasil analisis XRD menunjukkan bahwa sampel ZnO dan ZnO/Ag memiliki fasa ZnO yang dominan, bahkan pada sampel ZnO hanya ditemukan fasa ZnO. Sementara pada sampel ZnO/Ag selain fasa ZnO, juga ditemukan fasa Ag. Faktor yang memengaruhi terbentuknya fasa Ag pada sampel B karena adanya penambahan $AgNO_3$, sehingga masih terbentuk fasa selain ZnO. Hasil pemindaian SEM menggambarkan morfologi berbentuk seperti batuan karang Selain itu, hasil analisis uji antibakteri terhadap bakteri E.coli, ditemukan zona hambat pada sampel ZnO/Ag sebesar 7 mm.

Kata kunci: Ag, Anti Bakteri, Daun Kelor, ZnO.

ABSTRACT

ANTIBACTERIAL ACTIVITY TEST OF NANO ZnO AND ZnO/Ag USING MORINGA LEAF EXTRACT

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Synthesis of nano-ZnO from Moringa leaves has been carried out using a green synthesis method which is varied into 2 types, namely ZnO and ZnO/Ag from Moringa leaves. This study aims to determine the morphology and size of nanoparticles as well as the antibacterial activity of ZnO and ZnO/Ag from Moringa leaves. The synthesis process was carried out through three stages, namely Moringa leaves extraction, nano-ZnO synthesis, and characterization using X-Ray Diffraction (XRD), antibacterial test using E. coli bacteria, and SEM characterization. The results of the XRD analysis showed that the ZnO and ZnO/Ag samples had a dominant ZnO phase, even in the ZnO sample a new ZnO phase was found. Meanwhile, in the ZnO/Ag sample, in addition to the ZnO phase, an Ag phase was also found. The factor that influenced the formation of the Ag phase in sample B was the addition of $AgNO_3$, so that phases other than ZnO were still formed. The results of SEM scanning showed a morphology that resembled coral rock. In addition, the results of the antibacterial test analysis against E. coli bacteria showed an inhibition zone in both samples, which was ZnO/Ag 7 mm.

Keywords: Ag, Antibacterial, Moringa Leaves, ZnO.