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## **PREPARATION OF LDPE/ZINC OXIDE NANOCOMPOSITE FILMS VIA MELT MIXING METHOD FOR FOOD PACKAGING APPLICATION**

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### **ABSTRACT**

Nowadays, antimicrobial food packaging presents an excellent potential to be implemented as an innovative solution in food technology to reduce the rate of microbial growth in food and extend the shelf life of it. Nanocomposite LDPE films containing ZnO nanoparticles (1, 3, 3 g-ma, 5 wt.%) were prepared by melt mixing and hot press molding method. The mechanical properties of the films prepared were characterized by using stress-strain analysis. Rheological properties of nanocomposites were determined using rotational rheometers. Moreover, the results showed the nanocomposites as possessing lower elongation at break and with the increase of each of nanofillers content but Young's modulus faces with an increase. Rheological properties demonstrate that the rheological moduli of the nanocomposites increases with increasing the nanofiller concentration so that the high frequency region is more benefited by this effect.

**Keywords:** ZnO nanoparticles- LDPE - Rheological properties -Mechanical property



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