ABSTRACT

Chicken meat is classified as a perishable foodstuff and is susceptible to microbial contamination due to its high protein content. This condition not only has the potential to cause economic losses but can also endanger health. The preservation of chicken meat is one way to prevent such damage. Active packaging is a suitable and practical method for preserving chicken meat. Spinach leaves (Amaranthus spp.) contain several compounds such as flavonoids and polyphenols. This study aims to develop antibacterial packaging based on Carbon Dots (CDs) from spinach leaves composite with Polyvinyl Alcohol (PVA), and evaluate its effectiveness in inhibiting microbial growth on chicken meat through Total Plate Count (TPC) testing. CDs were successfully synthesized using the hydrothermal method, then the solution was mixed with PVA at varying CDs concentrations during the mixing stage, before being molded into a film. Characterization of the CDs/PVA composite was performed via Photoluminescence (PL) testing to assess emission intensity, Tensile Strength (TS) testing to determine the film's mechanical strength, and TPC testing to evaluate the film's effectiveness in inhibiting microbial growth on chicken meat. The results of this study indicate that the formula with a 0.075% CDs concentration yields the most optimal results, as evidenced by a PL emission intensity of 1358 a.u., a TS of 20.522 MPa, and the lowest TPC value of $1{,}8 \text{ X } 10^8$ *CFU/g after storage. The active film exhibits a flexible, transparent, and tear-resistant structure, making it suitable for use as food packaging.*

Keywords*: Carbon Dots (CDs), Polyvinyl Alcohol (PVA), Active Packaging, Total Plate Count (TPC), Chicken Meat*