

## **Efficacy of biopolymer/starch based antimicrobial packaging for chicken breast fillets**

### **ABSTRACT**

Food contamination leading to the spoilage and growth of undesirable bacteria, which can occur at any stage along the food chain, is a significant problem in the food industry. In the present work, biopolymer polybutylene succinate (PBS) and polybutylene succinate/tapioca starch (PBS/TPS) films incorporating Biomaster-silver (BM) and SANAFOR® (SAN) were prepared and tested as food packaging to improve the lifespan of fresh chicken breast fillets when kept in a chiller for seven days. The incorporation of BM and SAN into both films demonstrated antimicrobial activity and could prolong the storability of chicken breast fillets until day 7. However, PBS + SAN 2%, PBS/TPS + SAN 1%, and PBS/TPS + SAN 2% films showed the lowest microbial log growth. In quality assessment, incorporation of BM and SAN into both film types enhanced the quality of the chicken breast fillets. However, PBS + SAN 1% film showed the most notable enhancement of chicken breast fillet quality, as it minimized color variation, slowed pH increment, decreased weight loss, and decelerated the hardening process of the chicken breast fillets. Therefore, we suggest that the PBS + SAN and PBS/TPS + SAN films produced in this work have potential use as antimicrobial packaging in the future.

**Keyword:** Biomaster-silver; SANAFOR®; Tapioca starch; Polybutylene succinate; Antimicrobial; Food packaging