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Starch-gelatin antimicrobial packaging materials to extend the shelf life of chicken breast fillets

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1           **STARCH-GELATIN ANTIMICROBIAL PACKAGING MATERIALS TO**  
2                   **EXTEND THE SHELF LIFE OF CHICKEN BREAST FILLETS**

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10     **Abstract**

11     Antimicrobial starch:gelatin (1:1) films containing N- $\alpha$ -lauroyl-L-arginine ethyl ester  
12     monohydrochloride (LAE) (10 % wt.) were used as food contact active layers in chicken  
13     breast fillets vacuum-packaged in polyamide/polyethylene pouches. Active layers were  
14     thermoprocessed (TP) or cast (OC) on the plastic film. Oxidized starch was used in OC  
15     coatings. Packaged chicken breast samples were stored at 4 °C and their  
16     physicochemical properties (pH, colour and lipid oxidation) and microbial quality were  
17     analysed throughout storage. Both TP and OC films significantly ( $p < 0.05$ ) extended the  
18     shelf life of chicken breast fillets compared to control samples. The starch oxidation  
19     reaction in OC films promoted the formation of Maillard reaction compounds in the  
20     starch-gelatine blends, which enhanced the antimicrobial effectiveness of the OC films,  
21     but also promoted oxidative processes. This greatly affected the pH and colour  
22     parameters in OC packaged samples. Therefore, TP blend films containing LAE are

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