

Extraction of pomegranate peel and green tea leaves and their effects on the microbial, physicochemical, microstructural and sensorial properties of chilled-stored chicken meat

ABSTRACT

Pomegranate (*Punica granatum* L.) peel extracts (PPE) and green tea (*Camellia sinensis*) leaves extracts (GTE) have the potential to be the natural preservatives to prolong the chicken meat quality stored in chilling temperature. The first part of this work aimed to determine the effects of solid-liquid extraction (SLE) and ultrasound-assisted extraction (UAE) in extracting the pomegranate peel and green tea leaves. The second part was to determine the microbial, physicochemical, microstructural and sensorial properties of chicken meat applied with the PPE, GTE or PPE+GTE and stored in chill temperature for seven days. UAE method resulted in higher antioxidant activity in PPE and GTE at 74.3% and 70.4%, respectively compared to SLE method at 48.2% and 41.5%, respectively. The GTE inhibited the microbial growth with 5.47 and 5.96 log CFU/g of the chicken meat at the third and seventh day of chilled-storage, respectively. The water holding capacity, pH, lipid peroxidation and texture were not affected by the extracts. GTE affected the chicken meat by increasing the yellowness (b^*), changing the microstructure, and reducing the sensory acceptability. Overall, GTE can be used as a natural preservative for chilled chicken meat, however, further additional treatments are needed to overcome the negative effect on the chicken meat characteristics.

Keyword: chicken meat; Green tea leaves; Natural antioxidants; Pomegranate peel; Solid-liquid extraction; Ultrasound-assisted extraction