

Physicochemical Properties of Peking Duck Skin Gelatin Extracted Using Acid Pretreatment (ADS) or Mixed Alkaline Acid Pretreatment (ALDS)

ABSTRACT

Duck skin is the by-product of duck meat production, and it is a readily available source of gelatin that may serve as an alternative to gelatin made from pigs and cows. In this study, the physicochemical properties of Peking duck skin gelatin were assessed. Duck skin gelatin was extracted using acid pretreatment (ADS) or mixed alkaline-acid pretreatment (ALDS). The extraction yield of ALDS (1.95%) was significantly higher than that of ADS (1.33%), and the recovery of protein of ALDS was 46.47% compared to 43.77% for ADS. The bloom value of ADS (364.10 g) was significantly higher than that of ALDS (205.13 g) and commercial type B bovine gelatin (BG, 224.20 g). The high bloom value of ADS and medium bloom value of ALDS mean that they can be used in many food applications. The hydroxyproline content of ADS (13.84 g/100 g) also was significantly higher than that of ALDS (10.25 g/100 g) and BG (12.87 g/100 g). The pH of ADS and BG (5.31 and 4.90, respectively) did not differ significantly, whereas the pH of ALDS was 8.34. Viscosity values of ADS and ALDS were 13.51 and 12.35 mPas, respectively, which were significantly higher than that of BG (3.62 mPas). Overall, these results show that duck skin is a potential raw material for gelatin production, as it has a high bloom value and is readily available in Malaysia.