**Effects Of Camel Age and Plasticizes On the Camel Bone Gelatin Films**

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Abstract:

In this study, camel bone gelatin films (CBGF) plasticized with glycerol or sorbitol were developed and evaluated. The camel bone gelatins (*Camelus dromedarius)* were extracted from three different camel bones of camels aged 2.5, 4.5, and 7 years. The developed films were plasticized with 33% glycerol and 75% sorbitol (w/w) and evaluated for their thickness, light absorption, solubility, moisture sorption–desorption isotherm, water vapor permeability, and the mechanical and thermal properties. The results revealed that the camel ages as well as the plasticizer used had significant (P <0.05) effects on the film properties. The tensile strength (TS) values of the films with glycerol (from 0.32 to 0.69 MPa) with the percentage of elongation at break (%EAB) (from 89.42 to 2.68% ) while the TS values of the films with sorbitol (from 2.08 to 3.99 MPa) with %EAB (from 89.42 to 2.68% ) for the gelatin from the bone ages 2.5 to 7 years, respectively. The film color showed the higher lightness values (L) were observed for gelatin films with sorbitol. All samples showed 100% solubility of films with both plasticizers. The moisture sorption and desorption isotherm values increased with increasing the temperature (25, 35 and 45 °C). The gelatin films with sorbitol retained less water compared to the films plasticized with glycerol. In addition, it was observed that the WVP values were lower in the gelatin films from older camel bones (7 years). The thermal analysis of the films using the differential scanning calorimetry (DSC) showed the melting temperature (Tm) ranged from 158.60 - 174.10 °C depends on the camel bone age and the plasticizer. The findings of this study suggest that such films are suitable for applications in food packaging, coatings, and pharmaceutical materials.

Keywords: Camel Bone, Gelatin, Edible Films, Plasticizer, Sorbitol, Glycerol.