Effects of Konjac, Isolated Soy Protein, and Egg Albumin on Quality Properties of Semi-dried Chicken Jerky

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Abstract

The objective of this study was to examine the effect of adding various humectants (konjac, egg albumin, and isolated soy protein) on the properties of semi-dried chicken jerky. Jerky samples were prepared as follows: control with no humectants and treatments with 0.05, 0.1, and 0.2% of added humectants. Adding the humectants influenced the increase in pH, processing yields, moisture contents, water activity, mechanical tenderness, and sensorial properties (tenderness, juiciness, and overall acceptability) of chicken jerky. Additionally, the konjac treatment most improved the yields, tenderness, and sensorial traits, among the humectant treatments tested. Furthermore, adding 0.1% konjac during jerky manufacture resulted in similar quality properties as adding 0.2% konjac.

Key words: chicken jerky, humectants, konjac, isolated soy protein, egg albumin

Introduction

Intermediate-moisture foods (IMF), such as jerky, represent processed foods that can be stored without refrigeration; however, upon storage these products, can lose moisture and acquire a dry texture rather than the desired moist texture (Hole, 2003). The undesirable ingress or loss of moisture depends on the humidity of the surrounding atmosphere and can be controlled by packaging. In regards to IMF, a high water activity could allow for microbial growth (Hole, 2003). The composition of IMF is controlled by use of humectants, which prevent migration of moisture. Konjac, egg albumin, and isolated soy protein (ISP) are the most commonly used humectants in the manufacturing of meat products.

Konjac (or konjac mannan) is a polysaccharide from the dried tuber of Amorphophallus konjac. It is a glucomannan and consists of a main chain of (1, 4)-β-D-mannopyranosyl and D-glucopyranosyl units with (1, 3) linked branches approximately every 10 sugar residues, and the ratio of mannose to glucose is 1.6:1 (Lin and Huang, 2003; Williams and Phillips, 2003). Recently, konjac was approved for use in food and is now finding applications as a thickener and gelling agent, since it forms thermo-reversible gels with xanthan gum and also increases the gel strength, elasticity, and clarity of kappa-carrageenan gels, and the purified konjac flour has been introduced on a relatively small scale into the United States and Europe, both as a food additive and a dietary supplement (Chua et al., 2010; Williams and Phillips, 2003). Chin et al. (2009) reported that the addition of konjac flour improved gelling properties of the composite gel systems.

Egg albumin is available in different forms for use in processed foods and has many important functional properties, such as foaming and binding ability, emulsifying ability and moisture retention. It has been used in the formulation of normal and low-fat meat products and has proved very effective as binders for meat. However, there is a drawback to its use in processed meats in that it is relatively costly (Jimenez-Colmenero, 2004). Fernandez et al. (1998) found that the addition of egg white increased water binding of chicken meat batters, and Pietrasik (2003) reported that the cooking and purge losses and the expressible moisture of beef gels were appreciably affected.

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by egg albumin addition.
Soy protein products have been used primarily for their functional characteristics. The soy protein polymer chain contains both lipophilic and hydrophilic groups; thus, this protein associates readily with both fat and water. This promotes the formation of stable oil and water emulsions when the protein dispersion is mixed with oil. Especially, isolated soy protein (ISP) aids in the formation of gels, which acts as matrices to retain moisture, fats and solids, and imparts a desirable texture (Jimenez-Colmenero, 2004). Lee et al. (2003) reported that the addition of ISP to meat emulsion for pork patties improved cooking loss and juiciness. However, Chin et al. (1999) pointed out that the textural properties in a low-fat bologna were less acceptable than the control when more than 2% of the meat protein was replaced with ISP.
Therefore, the objective of this study was to enhance the quality characteristics of semi-dried chicken jerky prepared with various humectants, and to determine whether humectants treatment can be effectively utilized during jerky processing.

Materials and Methods

Raw materials and curing solution preparation
A commercial sample of chicken breast meat (Pectoralis major; pH: 5.99±0.16, moisture contents: 74.94±0.96%, protein contents: 22.58±0.43%, fat contents: 1.09±0.09%, ash contents: 1.31±0.08%) was purchased from a local market. The meat was trimmed of visible fat before use for jerky processing, and was ground through a grinder with an 8 mm plate (PM-100, Mainca, Barcelona, Spain). The composition (% w/w) of the curing solution was water (9%), soy sauce (8%), starch syrup (3.5%), sucrose (1.8%), D-sorbitol (5.8%), black pepper powder (0.18%), ginger powder (0.09%), garlic powder (0.18%), onion powder (0.18%), sodium nitrate (0.005%), sodium citrate (0.007%), potassium sorbate (0.09%), sodium erythorbate (0.03%), and soup stock powder (0.09%). Also, salt (0.6%) and phosphate (0.1%) were incorporated into the binding meat (Choi et al., 2008). The pH of curing solutions was 5.45±0.06. Additionally, each humectant added 0.05, 0.1, and 0.2%, after dissolved in water, respectively (Table 1).

Preparation of jerky
The ground chicken breast meat was mixed with curing solution by hand for 3 min. The meat was then continuously tumbled in a tumbler (MGH-20, Vackona, Germany) at 4°C for 30 min at 25 rpm. Cured meat was stuffed into cellulose casing (Φ - 20 mm), and dried in a convection dry oven (Enex-CO-600, Enex, Korea) for 180 min at 55°C, for 180 min at 65°C, and for 60 min at 75°C (Choi et al., 2008).

| Table 1. Curing solution formula for semi-dried chicken jerky |
|-------------------|------------------|
| Ingredients       | Formulation (% in batch) |
| Water             | 9                |
| Soy sauce         | 8                |
| Salt              | 0.6              |
| Starch syrup      | 3.5              |
| Sucrose           | 1.8              |
| D-sorbitol        | 5.8              |
| Black pepper powder | 0.18            |
| Ginger powder     | 0.09             |
| Garlic powder     | 0.18             |
| Onion powder      | 0.18             |
| Sodium nitrate    | 0.005            |
| Sodium citrate    | 0.007            |
| Potassium sorbate | 0.09             |
| Sodium erythorbate| 0.03             |
| Soup stock powder | 0.09             |
| Phosphate         | 0.1              |

Control: no humectants, humectants treatments: added 0.05, 0.1, 0.2%, respectively

Moisture contents and water activity
Moisture contents were determined by weight loss after 24 h of drying at 105°C in a drying oven (SW-90D, Sang Woo Scientific Co., Korea) as recommended by AOAC (1995). Samples for water activity of each sample was determined in triplicate with a hygrometer (BT-RS1, Rotronic ag., Switzerland).

pH
The pH of samples was determined with a pH meter (Model 340, Mettler-Toledo GmbH, Switzerland). The pH values of jerky were measured by blending a 5 g sample with 20 mL distilled water for 60 s in a homogenizer (Ultra-Turrax T25, Janke & Kunkel, Germany).

Processing yields
Processing yields were determined by calculating the weight differences of jerky before and after drying as follows:
Processing yields (%) = \( \frac{\text{jerky weight after drying (g)}}{\text{cured meat weight before drying (g)}} \times 100 \)

**TBA (Thiobarbituric acid) value**

Thiobarbituric acid (TBA) values were determined using the distillation method of Tarladgis et al. (1960). Results were expressed as mg of malonaldehyde per kg of sample.

**Percent metmyoglobin measurements**

Metmyoglobin concentration of sample was used a modification of procedures by Krzywicki (1979). Samples were blended with five volumes of cold 0.04 M phosphate buffer at pH 6.8 for 10 s in a homogenizer (Model AM-7, Nihonseiki Kaisha Ltd., Tokyo, Japan). After standing at 1°C for 24 h, the mixtures were centrifuged at 3500 g at 4°C for 30 min. The supernatant was further clarified by filtration through Whatman No. 1 filter paper. The absorbance of filtrate was measured at 525, 572, 700 nm using a spectrophotometer (Libra S22, Young In Scientific Ltd., Seoul, Korea). The percent metmyoglobin was calculated using the following formula:

\[
\text{Metmyoglobin (\%)} = \left[ \frac{1.395 - (A_{572} - A_{700})}{(A_{525} - A_{700})} \right] \times 100
\]

where \(A_\lambda\) = Absorbance at \(\lambda\) nm

**Shear force measurement**

Shear force values were determined with a Warner-Bratzler shear attachment on a texture analyzer (TA-XT2i, Stable Micro System Ltd., Surrey, UK). Test speeds were set at 2.0 mm/s. Data were collected and analyzed from the shear force values to obtain for the maximum force required to shear through each sample.

**MFI (Myofibrillar fragmentation index) measurements**

Myofibrils were obtained according to the method of Olson et al. (1976) using MFI buffer (20 mM K\_2HPO\_4/ KH\_2PO\_4, pH 7, 100 mM KCl, 1 mM EDTA, 1 mM NaN\_3). The myofibrils were suspended in MFI buffer. An aliquot of myofibril suspension was diluted with the MFI buffer to 0.5 mg/mL protein concentration and the absorbance of this suspension was measured at 540 nm. MFI values were recorded as absorbance of units per 0.5 mg/mL myofibril protein concentration multiplied by 200 (Yu et al., 2009).

**Sensory evaluations**

Each jerky sample was subjected to sensory evaluations. The samples were served to 12 panel members with previous experience. Panelists were presented with randomly coded samples. The color (1 = extremely undesirable, 10 = extremely desirable), flavor (1 = extremely undesirable, 10 = extremely desirable), tenderness (1 = extremely tough, 10 = extremely tender), juiciness (1 = extremely dry, 10 = extremely juicy), and overall acceptability (1 = extremely undesirable, 10 = extremely desirable) of the samples were evaluated using a 10-point horizontal scale. Panelists were required to cleanse their palate between samples with water (Choi et al., 2008; Keeton, 1983).

**Statistical analysis**

An analysis of variance were performed on all the variables measured using the General Linear Model (GLM) procedure of the SAS statistical package (SAS Inst., 1999). The Duncan’s multiple range test (p<0.05) was used to determine differences among the treatment means.

**Results and Discussion**

**pH and processing yield**

The pH and processing yields of the chicken jerky containing humectants is shown in Table 2. The pH of all jerky was between 6.09-6.17, and the samples containing humectant had higher pH values than the control samples, except for treatments with 0.05% konjac and egg albumin. At higher humectants concentrations, the pH values of the semi-dried jerky increased. Similar results were obtained by Song (1997) who found that beef jerky manufactured with glycerol had a slightly higher pH than the control. Lin and Huang (2008) reported that the pH values of gum-containing treatments were higher than the controls, which was attributed to the alkaline-induced gelation of konjac gel. In addition, Ahamed et al. (2000) reported that cutlets containing egg white powder had a significantly higher pH compared to the control because of the higher pH of the egg white powder. Furthermore, Chin et al. (2000) found that mean pH values of low-fat bologna containing ISP were higher than those of low-fat bologna formulated without ISP.

The processing yields of semi-dried chicken jerky ranged from 46.89 to 49.60%, and the jerky containing humectants had higher yields than the control, except for treatments with 0.05% humectant and 0.1% ISP. In addition, samples prepared with 0.2% konjac had higher process-
ing yields than other treatments except for jerky prepared with 0.1% konjac; therefore, addition of 0.1% konjac was more effective with regard to product yield enhancement. Choi et al. (2008) found that the drying yields of jerky ranged between 48-53% regardless of the pork/beef levels, and Song (1997) reported that humectants treatments resulted in higher product yields than control beef jerky, which may have been due to the humectants having a higher capacity to retain water. Chin et al. (1990) found that the addition of egg white had no effect on the water holding capacity (WHC) of bologna mixed gels, and the interaction between konjac flour and the myofibrillar protein appeared to play a role in the improved gelling properties of the composite gel systems. In addition, Xiong et al. (2002) reported that the cooking yields of low-sodium restructured meat products were affected by the level of added soy protein, and they concluded that the soy protein may have acted as binders for restructured meat products due to their ability to bind muscle proteins.

**Moisture contents and water activity**

The moisture contents and water activity of all jerky samples ranged from 36.41-39.20% and 0.84-0.86, and the addition of humectants was positively correlated with moisture contents and water activity (Table 2). Similar results were obtained by Choi et al. (2008) who found that semi-dried jerky had moisture contents ranging from 34-37% and water activity ranging from 0.82-0.88. In addition, the chicken jerky containing 0.1 and 0.2% konjac had significantly higher moisture contents than other treatments; however, there were no significant differences in jerky containing 0.1% and 0.2% konjac. The control jerky also had significantly lower water activity than the samples containing 0.1 and 0.2% konjac, 0.2% egg albumin, and 0.1 and 0.2% ISP.

Chin et al. (2009) demonstrated that konjac flour improved the water-binding properties in myofibrillar protein mixed gels, and the interaction between konjac flour and the myofibrillar protein appeared to play a role in the improved gelling properties of the composite gel systems. In addition, Xiong et al. (2009) reported that the water-holding properties of the grass carp (*Ctenopharyngodon idella*) surimi gels improved with an increase in the konjac glucomannan concentration. Jimenez-Colmenero et al. (1996) reported that the addition of egg white had no effect on the water holding capacity (WHC) of bologna sausages. Akesowan (2008) found that increasing the ISP levels resulted in higher moisture contents in pork sausage; however, in this study, the moisture content of ISP treatments was similar to the controls due to the difference in the amounts added.

**TBA and metmyoglobin**

As shown in Table 3, the semi-dried chicken jerky prepared with 0.2% konjac had lower TBA and metmyoglobin than the control jerky, and there were no differences within the same humectants treatments. Niwa et al. (2002) found that *tobiko* (konjac powder) contained natural antioxidants (ex: serotonin, trans-N-(p-coumaroyl)serotonin, 3,4-dihydroxybenzaldehyde, and 3,4-dihydroxybenzoic acid), which showed high antioxidative activities. In addition, Huang et al. (1998) reported that the TBA values of low-fat Chinese-style sausage decreased with an increase

<table>
<thead>
<tr>
<th>Treatments</th>
<th>pH</th>
<th>Processing yields (%)</th>
<th>Water contents (%)</th>
<th>Water activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6.09±0.04a</td>
<td>46.89±0.75b</td>
<td>36.41±0.56b</td>
<td>0.84±0.00f</td>
</tr>
<tr>
<td>Konjac 0.05%</td>
<td>6.10±0.04bc</td>
<td>47.01±0.28d</td>
<td>37.22±0.39b</td>
<td>0.84±0.00f</td>
</tr>
<tr>
<td>Konjac 0.1%</td>
<td>6.14±0.05ab</td>
<td>49.05±0.22bc</td>
<td>39.18±0.20a</td>
<td>0.86±0.01a</td>
</tr>
<tr>
<td>Konjac 0.2%</td>
<td>6.14±0.06ab</td>
<td>49.60±0.54a</td>
<td>39.20±0.45a</td>
<td>0.86±0.000f</td>
</tr>
<tr>
<td>Egg albumin 0.05%</td>
<td>6.10±0.05bc</td>
<td>46.98±0.71d</td>
<td>36.82±0.26b</td>
<td>0.85±0.00f</td>
</tr>
<tr>
<td>Egg albumin 0.1%</td>
<td>6.15±0.04ab</td>
<td>47.81±0.35c</td>
<td>37.23±2.64b</td>
<td>0.85±0.00f</td>
</tr>
<tr>
<td>Egg albumin 0.2%</td>
<td>6.17±0.06a</td>
<td>48.72±0.59b</td>
<td>37.93±2.40a</td>
<td>0.86±0.01b</td>
</tr>
<tr>
<td>Isolated soy protein</td>
<td>6.14±0.05ab</td>
<td>46.95±0.39d</td>
<td>36.47±0.78b</td>
<td>0.85±0.00f</td>
</tr>
<tr>
<td>Isolated soy protein</td>
<td>6.14±0.04ab</td>
<td>47.39±0.40c</td>
<td>37.07±0.53b</td>
<td>0.86±0.01a</td>
</tr>
<tr>
<td>Isolated soy protein</td>
<td>6.15±0.06ab</td>
<td>48.57±0.23b</td>
<td>37.90±0.62b</td>
<td>0.86±0.01a</td>
</tr>
</tbody>
</table>

All values are mean±SD. ^A^-^D^ Means in the same column with different letters are significantly different (p<0.05).
in the amount of added konjac.

Although there were no significant differences among the samples, except the jerky containing 0.1 and 0.2% konjac, the addition of egg albumin and ISP tended to decrease the TBA value and metmyoglobin levels. Sathivel (2005) reported that the TBA value of pink salmon fillets coated with egg albumin were slightly lower than the control non-coated fillet. Manso et al. (2002) demonstrated that hydrolyzed egg white prevented oxidative stress by increasing plasma radical-scavenging capacity and inhibiting lipid peroxidation, and this antioxidant activity could act together with the ACE-inhibitory activity and vasodilator properties, both of which contribute to the antihypertensive effects of hydrolysed egg white. Wu and Brewer (1994) found that the water extracts of a soy protein isolate had antioxidant effects in ground beef and microsomal lipids based on iron-induced oxidation as measured by TBA. Peoa-Ramos and Xiong (2002) also reported that both hydrolyzed and non-hydrolyzed soy protein isolates decreased TBARS in a liposome-oxidizing system.

**Shear force and MFI**

Tenderness, which is the most important textural factor of meat and meat products, significantly influences consumer preference (Kim and Lee, 2003), and the application of myofibrillar fragmentation index (MFI), a method for identifying tender meat and meat products, has been shown to be significantly correlated with shear force values (Culler et al., 1978; Olson and Parrish, 1977). In this study, the tenderness of semi-dried chicken jerky was assessed by comparing the shear force and MFI of different samples (Table 3). Compared to the control jerky samples, the chicken jerky prepared with 0.1 and 0.2% humectants had significantly lower shear force except for treatments with 0.1% ISP. In addition, samples prepared with humectant also had a higher MFI except for with 0.05% ISP. Therefore, the addition of humectants improved the tenderness in chicken jerky, and konjac treatment was the most effective with regard to enhancing the tenderness of the jerky product. Similar results were reported by Okonkwo et al. (1992) who found that the glycerol treated intermediate moisture smoked meats were significantly less tough than the corresponding glycerol-free samples, which was attributed to a moisture loss in the controls.

Hsu and Chung (1999) found that the addition of konjac decreased the hardness in low fat Kung-wan (a Taiwanese emulsified meatball), and Chin et al. (1998) reported that as the levels of konjac blends increased upon cooking contributed to the viscoelastic texture of a low-fat meat gel system. Chen et al. (1993) also reported that egg white improved the textural properties of surimi gels. Chung and Lee (1991) pointed out that the compressive force of soy protein isolate-incorporated surimi gels and egg white-incorporated samples was significantly lower than those of the controls, and a similar trend was observed for the penetration force with the exception of egg white-incorporated gels.

**Sensory properties**

The sensory properties of semi-dried chicken jerky containing humectants are given in Table 4. The semi-dried

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Table 3. Comparison on TBA, metmyoglobin, shear force, and MFI of semi-dried chicken jerky prepared with various humectants

<table>
<thead>
<tr>
<th>Treatments</th>
<th>TBA (mg/kg)</th>
<th>Metmyoglobin (%)</th>
<th>Shear force (kg)</th>
<th>MFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0.22±0.03</td>
<td>92.39±0.70</td>
<td>13.14±0.85</td>
<td>6.15±0.25</td>
</tr>
<tr>
<td>Konjac</td>
<td>0.05%</td>
<td>0.20±0.03</td>
<td>92.19±0.35</td>
<td>12.85±1.11</td>
</tr>
<tr>
<td></td>
<td>0.1%</td>
<td>0.20±0.02</td>
<td>91.73±0.18</td>
<td>11.12±0.91</td>
</tr>
<tr>
<td></td>
<td>0.2%</td>
<td>0.19±0.02</td>
<td>91.52±0.45</td>
<td>11.30±0.84</td>
</tr>
<tr>
<td>Egg albumin</td>
<td>0.05%</td>
<td>0.22±0.02</td>
<td>92.21±0.39</td>
<td>12.89±1.05</td>
</tr>
<tr>
<td></td>
<td>0.1%</td>
<td>0.21±0.02</td>
<td>91.93±0.26</td>
<td>12.15±0.59</td>
</tr>
<tr>
<td></td>
<td>0.2%</td>
<td>0.21±0.02</td>
<td>91.73±0.50</td>
<td>11.89±0.65</td>
</tr>
<tr>
<td>Isolated soy</td>
<td>0.05%</td>
<td>0.22±0.02</td>
<td>92.35±0.23</td>
<td>12.84±0.90</td>
</tr>
<tr>
<td>protein</td>
<td>0.1%</td>
<td>0.21±0.03</td>
<td>92.07±0.65</td>
<td>12.59±0.82</td>
</tr>
<tr>
<td></td>
<td>0.2%</td>
<td>0.21±0.03</td>
<td>91.83±0.45</td>
<td>12.42±0.81</td>
</tr>
</tbody>
</table>

All values are mean±SD. A-E Means in the same row with different letters are significantly different (p<0.05).
Table 4. Comparison on sensorial properties of semi-dried chicken jerky prepared with various humectants

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Color</th>
<th>Flavor</th>
<th>Tenderness</th>
<th>Juiciness</th>
<th>Overall acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>8.78±0.44</td>
<td>8.00±0.50</td>
<td>7.22±0.47A</td>
<td>7.11±0.78A</td>
<td>7.17±0.94AB</td>
</tr>
<tr>
<td>Konjac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05%</td>
<td>8.78±0.44</td>
<td>8.00±0.50</td>
<td>7.56±0.53BC</td>
<td>7.56±0.53BC</td>
<td>7.78±0.44AB</td>
</tr>
<tr>
<td>0.1%</td>
<td>8.67±0.50</td>
<td>7.78±0.44</td>
<td>7.89±0.68AB</td>
<td>7.89±0.68AB</td>
<td>7.78±0.44AB</td>
</tr>
<tr>
<td>0.2%</td>
<td>8.56±0.53</td>
<td>7.78±0.50</td>
<td>8.22±0.67A</td>
<td>8.00±0.71A</td>
<td>8.11±0.60A</td>
</tr>
<tr>
<td>Egg albumin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05%</td>
<td>8.78±0.44</td>
<td>7.89±0.33</td>
<td>7.56±0.35BC</td>
<td>7.44±0.73AB</td>
<td>7.67±0.71AB</td>
</tr>
<tr>
<td>0.1%</td>
<td>8.67±0.50</td>
<td>7.78±0.44</td>
<td>7.56±0.35BC</td>
<td>7.44±0.73AB</td>
<td>7.67±0.71AB</td>
</tr>
<tr>
<td>0.2%</td>
<td>8.33±0.50</td>
<td>7.67±0.50</td>
<td>7.78±0.67ABC</td>
<td>7.67±0.50ABC</td>
<td>7.89±0.33AB</td>
</tr>
<tr>
<td>Isolated soy protein</td>
<td>8.67±0.50</td>
<td>7.78±0.67</td>
<td>7.33±0.71AB</td>
<td>7.22±0.67AB</td>
<td>7.39±0.70AB</td>
</tr>
<tr>
<td>0.1%</td>
<td>8.56±0.53</td>
<td>7.61±0.49</td>
<td>7.61±0.49AB</td>
<td>7.39±0.70AB</td>
<td>7.50±0.71AB</td>
</tr>
<tr>
<td>0.2%</td>
<td>8.33±0.71</td>
<td>7.56±0.53</td>
<td>7.78±0.67ABC</td>
<td>7.67±0.87ABC</td>
<td>7.67±0.87ABC</td>
</tr>
</tbody>
</table>

All values are mean±SD. A-C Means in the same row with different letters are significantly different (p<0.05).

Jerky prepared with 0.1 and 0.2% konjac had significantly higher tenderness and juiciness scores than the control jerky, and the overall acceptability of the jerky containing 0.2% konjac was significantly higher than the controls. Also, there were no differences in the sensorial tenderness property within the same humectants treatments except for samples containing 0.05 and 0.2% konjac. Osburn and Keeton (2004) reported that significant sensory differences were only slightly perceptible at different konjac gel levels in terms of the flavor, taste, and texture of cooked lamb, and Lin and Huang (2003) found that the addition of konjac/gellan gum mixed gel to reduced-fat frankfurters could not only increase the perception that the food was healthy but it also had comparable characteristics as the regular high-fat frankfurters. In addition, significant difference was observed between the controls and humectant treatments except for the jerky containing konjac, the addition of egg albumin and ISP tended to improve the sensorial tenderness, juiciness, and overall acceptability. Karthikeyan et al. (2000) demonstrated that a slow release of moisture in Caprine keema (Indian traditional meat product) samples treated with humectants reduced the rapid decline in the juiciness observed for the control.

The study was to examine the effect of adding humectants such as konjac, egg albumin, and isolated soy protein on the properties of semi-dried chicken jerky. The use of humectants enhanced the quality properties of semi-dried chicken jerky, and the addition of 0.1% konjac was the most effective humectants treatment in this study, since it resulted in similar properties as the samples containing 0.2% konjac.

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