

EFFECT OF REFRIGERATION STORAGE ON THE QUALITY OF QUAIL MEAT PATTIES**

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Shelf-life is decisive for sustained marketability of ready-to-cook poultry products. Hasiak and Baker (1968) stored chicken steak for seven to ten days under refrigeration and Kondaiah *et al.* (1968) preserved chicken sausages upto 10 days at 5°C. Rejikumar *et al.* (1991) reported that chicken meat balls could be preserved upto four days at 5°C. Effect of refrigeration on quail meat patties was studied in the present project.

Materials and Methods

Deboned minced meat from 25 week old Japanese quails was used to prepare quail meat patties, using a recipe reported (Kamna Barkataki *et al.*, 1994). The patties were kept under refrigeration (5°C) and samples drawn at four and six days were evaluated along with fresh samples for quality and organoleptic parameters.

The content of moisture, protein, fat and total ash were determined and rancidity was evaluated by 2-thiobarbituric acid (TBA) test (Tarlades *et al.*, 1960). Total bacterial counts were determined by plate count method (Dam *et al.*, 1970).

Organoleptic evaluation was conducted after deep fat frying for 10 to 15 minutes at 150°C by a taste panel adopting a seven point hedonic scale for flavour, tenderness, juiciness and overall acceptability.

The shelf-life was evaluated for oxidative rancidity, total bacterial count, proximate components and organoleptic evaluation at each stage of storage under refrigeration. The data were statistically analysed.

Results and Discussion

The moisture, protein, fat and total ash contents of quail meat patties showed that the composition of quail meat patties was not altered (Table 1) by the duration of storage. The mean per cent moisture, protein, fat and total ash ranged from 71.98 ± 0.64 to 72.43 ± 0.39, 16.45 ± 0.43 to 17.14 ± 0.23, 5.87 ± 0.09 to 6.03 ± 0.15 and 4.43 ± 0.27 to 4.60 ± 0.38 respectively irrespective of the days of storage at 5°C. These values are in agreement with those reported by Narayanankutty *et al.* (1983) for chicken steak, Thind *et al.* (1988) for chicken patties and Rejikumar *et al.* (1991) for chicken meat balls.

The oxidative rancidity of fat (mg malonal dehyde per kg of sample) remained unaltered (Table 1) at zero and fourth day of storage but slightly increased at sixth day. Dawson (1975) employed low temperature storage to control lipid oxidation in minced meat and Dawson *et al.* (1975) opined that the TBA values above 2.00 is associated with the development of rancidity in meat samples.

The total bacterial load of the refrigerated products (Table 1) increased significantly (P <

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0.05) with increase in length of storage. Similar findings were reported by Baker *et al.* (1967), Narayanankutty *et al.* (1983) and Rejikumar *et al.* (1991).

The taste panel preferences and the scores for flavour, juiciness, tenderness and overall acceptability were not found to be different statistically.

Table 1 Proximate composition, thiobarbituric acid number (TBA number) and bacterial population of quail meat patties as affected by refrigeration storage (5°C)

Traits	Days of storage		
	0	4	6
Moisture (%)	72.36±0.41	71.98±0.64	72.43±0.39
Protein (%)	16.77±0.40	17.14±0.23	16.46±0.43
Fat (%)	5.99±0.25	5.87±0.09	6.03±0.15
Total ash (%)	4.48±0.05	4.43±0.27	4.60±0.38
TBA number	0.20±0.03	0.20±0.01	0.21±0.02
Total bacterial count (CFU/g)	7.80 × 10 ⁵ ± 7.05 × 10 ⁴	1.46 × 10 ⁶ * ± 3.89 × 10 ⁴	5.02 × 10 ⁷ * ± 5.02 × 10 ⁶

* Significantly different (P < 0.05)

Table 2 Organoleptic scores of quail meat patties as affected by different storage periods at 5°C

Characters	Days of storage		
	0	4	6
Flavour	6.8 ± 0.20	6.4 ± 0.39	6.0 ± 0.32
Juiciness	6.2 ± 0.37	5.4 ± 0.39	5.4 ± 0.24
Tenderness	6.2 ± 0.37	5.8 ± 0.20	5.4 ± 0.24
Overall acceptability	6.2 ± 0.20	6.0 ± 0.00	5.8 ± 0.20

Note: 7 = Excellent 6 = Very good
5 = Good 4 = Fair

3 = Poor 2 = Very poor
1 = Undesirable

Summary

Quail meat patties prepared from deboned minced meat of Japanese quails were subjected to qualitative and organoleptic evaluations. The proximate composition of the products remained unaltered when stored at 5°C upto six days. Rancidity evaluated by 2-thiobarbituric acid (TBA) number revealed that at 5°C the product remained unaffected. The total bacterial count per gramme was found to increase with each incremental storage period. The organoleptic evaluation revealed that the product was well acceptable and could be stored upto six days at 5°C.

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