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Shelf life study of chicken thigh boneless Schezwan kebab stored at chilled condition of below 4 °C temperature

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Abstract

In the present investigation an attempt was made to evaluate the storage life of marinated chicken thigh boneless Schezwan kebab with control raw chicken thigh boneless were evaluated for various quality parameters of chicken meat for six days under chilled storage conditions of below 4 °C temperature. Based on the quality parameters reports, there was a spoilage changes started in the scores of fresh raw chicken thigh boneless on 4th day of storage life. Where as in marinated chicken thigh boneless Schezwan kebab samples the spoilage changes observed on 6th day of chilled storage of below 4 °C temperature.

Keywords: Chicken thigh boneless, Schezwan kebab, Marination, shelf life

1. Introduction

Chicken thigh boneless is the most tender and juicy part of poultry chicken cuts. The juicy chicken thigh boneless is one of the most versatile and most delicious cut up part of poultry chicken. Chicken thigh boneless is generally wholesome in flavour and lean in nature (Geomaras, *et al.* 1996) ^[2] Chicken thigh boneless can be cooked in all the same ways as chicken breasts but the tenderness of thigh boneless is better and can be easily consumed by any age group. It's a very good source of iron and zinc so, it has an added advantage if you suffer from iron deficiency and anemia (Hang, B.M., Sharma *et al* 1999) ^[3] To improve the taste, flavour and shelf life of raw chicken thigh boneless is marinated with Schezwan spice mix to prepare the traditional product as marinated chicken thigh boneless Schezwan kebab.

2. Materials and Methods

The study was carried out to compare the storage life of marinated chicken thigh boneless Schezwan kebab with raw chicken thigh boneless under chilled storage conditions. Different quality parameters of meat was evaluated.

2.1 Experimental design

Fresh chicken thigh boneless of poultry broilers were procured from a local market in Hyderabad. The raw chicken thigh boneless was marinated with Schezwan spice mix and packed and kept at below 4 °C. The raw chilled chicken thigh boneless (without marination) are used as a control. The experimental parameters of both control and marinated chicken thigh boneless Schezwan kebab samples were evaluated for different meat quality parameters for six days under chilled storage of below 4 °C.

Table 1: Formulation of Schezwan spice mix

S. No.	Name of the ingredient	Quantity (gm)
1	Garlic powder	20
2	Onion powder	15
3	Chilli powder	10
4	Dry mango powder	10
5	Coriander powder	10
6	Cumin	10
7	Salt	10
8	Black pepper	10
9	Turmeric powder	5
10	Sugar	5

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Table 2: Formulation of Marination: Chicken thigh boneless Schezwan kebab

S.no	Product	Quantity
1	Raw chicken thigh boneless (kg)	1.0 kg
2	Lemon juice (ml)	10 ml
3	Schezwan spice mix (kg)	165 gm

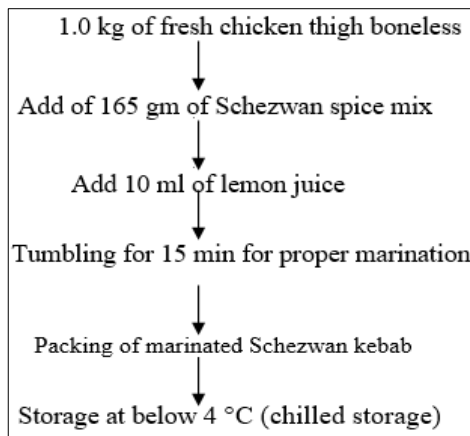


Fig 1: Processing Flow chart

2.3 Physico-chemical parameters

In Physico-chemical parameters, pH and Drip loss were assessed for both control and marinated chicken thigh boneless Schezwan kebab as per standard procedure.

2.4 Microbiological analysis

2.4.1 Total viable count

Total viable count (TVC) of each sample was estimated by pour plate technique described by Swanson et al. (2001) [6]. From the selected 10 fold dilutions of each sample, one ml of the inoculum was transferred onto duplicate petri-dishes of uniform size. To each of the inoculated plates, about 15-20 ml sterile molten standard plate count agar (SPCA) (Hi-media) maintained at 45 °C was poured. The inoculum was mixed with the medium by gentle rotatory movement of the inoculated petri-dishes in clockwise, anticlockwise, forward and backward manner. The inoculated plates were allowed to solidify at room temperature and were then incubated at 37 °C for 24 h aerobically. At the end of incubation period, petri-dishes with a bacterial count between 30 and 300 colonies were selected and count of each petri-dish was taken with the help of a colony counter. The number of colony forming units per ml of the carcass rinse was calculated by multiplying the mean colony count of duplicate plates with dilution factor and the count per ml of the carcass rinse was expressed as log cfu/ml.

2.4.2 Coliforms count

Coliforms count (CC) was estimated according to the procedure described by Nordic Committee on food analysis (1973). From the selected dilution, 0.1 ml of the inoculum was inoculated onto duplicate plates of violet red bile agar (VRBA) (Hi media) and the inoculum was uniformly distributed on the medium with a sterile “L” shaped glass rod and the plates were incubated at 37 °C for 24 h. At the end of incubation, purplish red colonies with a diameter of atleast 0.5 mm, surrounded by a reddish zone of precipitate were counted as coliforms. The number of organisms per ml of the sample was estimated by applying the dilution factor on the mean count of duplicate plates and the count per ml of carcass rinse expressed as log cfu/ml.

3. Results and Discussion

3.1 Physico-chemical parameters

The Physico-chemical parameters (pH & Drip loss) of control and marinated chicken thigh boneless Schezwan kebab. Both samples of physico chemical properties are increased during the chilled storage for six days. Based on results, there is a slight spoilage changes observed in control sample on the day of 4th day when compared to marinated chicken thigh boneless Schezwan kebab. But there is no spoilage changes observed in marinated Schezwan kebab sample on 4th day but started on 6th day onwards at chilled storage conditions. This results of present study were agreed with the Bremner, A.S. 1977 [1].

Table 3: Physico-chemical parameters of samples

Days	Control sample		Marinated chicken thigh boneless Schezwan kebab	
	pH	Drip loss (%)	Ph.	Drip loss (%)
1 st	5.9	0.56	5.8	0.35
2 nd	5.9	1.23	5.9	0.98
3 rd	6.0	2.46	6.0	1.45
4 th	6.4	3.98	6.0	2.56
5 th	6.6	4.67	6.3	3.24
6 th	6.9	6.34	6.4	4.33

3.2 Microbiological parameters

The microbiological count of raw chicken thigh boneless and marinated chicken thigh boneless Schezwan kebab samples increased from 1st day to 6th of chilled storage of below 4 °C. As per the microbiological results there is increase in the scores of total viable count and coliform count of raw chicken thigh boneless on 4th day of chilled storage, that indicates spoilage changes started in the control sample on 4th day of storage at below 4 °C. Where as in marinated chicken thigh boneless Schezwan kebab samples, the spoilage changes was started after 6th day of chilled storage of below 4 °C. Explained similar results by explained by Rao, D.N.et al (1998) [5].

Table 4: Microbiological parameters of samples

Days	Raw chicken thigh boneless		Marinated chicken thigh boneless Schezwan kebab	
	Total viable count (cfu/gm)	Coliforms (cfu/gm)	Total viable count (cfu/gm)	Coliforms (cfu/gm)
1 st	24×103	10	12×103	08
2 nd	28×103	12	16×103	10
3 rd	35×103	13	22×103	12
4 th	54×103	22	24×103	14
5 th	63×103	28	29×103	15
6 th	78×103	36	35×103	19

4. Conclusion

Present research was conducted to know the storage life of marinated chicken thigh boneless Schezwan kebab compared with control raw chicken thigh boneless. Results indicated that the all the quality parameters of marinated chicken thigh boneless Schezwan kebab samples showed a better results compared to raw chilled chicken thigh boneless sample. Based on the results, the raw chicken thigh boneless sample has the storage life of four days at chilled storage of below 4 °C but the raw chicken thigh boneless marinated with Schezwan spice mix (thigh boneless Schezwan kebab) is further extended the shelf life from four days to six to seven days at chilled storage of below 4 °C temperature.

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