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A COMPARATIVE STUDY ON PROXIMATE COMPOSITION OF FRESH AND SALT-BOILED PRAWN (*Macrobrachium rosenbergii*) FROZEN STORED AT -20^{0}C

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ABSTRACT

A study was conducted to evaluate the proximate composition of fresh and salt-boiled prawn stored at -20^0 C. The study was focused on comparative study on proximate composition, nutritional status and quality of the prawn in wet matter basis. The collected fresh prawns were boiled in 2.5% brine for 15 minutes followed by freezing at -20^0 C to evaluate the quality of prawns at 16 weeks period of frozen storage. The sample was stored separately in individual boxes for every experimental uses. The proximate composition of the sample during frozen storage (16 weeks) was evaluated by studying organoleptic assessments, protein, lipid, ash, moisture and TVBN. The fresh prawn during frozen storage was organoleptically accepted up to 12 weeks but unaccepted after 16 weeks of storage whereas the salt-boiled frozen prawn was remained acceptable after 16 weeks of frozen storage at -20 ^{0}C. The initial protein content of fresh prawn was decreased gradually with the storage period. At the end of the 16 weeks of frozen storage, initial protein content of fresh prawn was decreased from 22.36 ±0.45% to 16.24 ±0.27% and protein content of salt-boiled prawn was decreased from 29.69 ±0.28% to 22.89 ±0.29%. The initial lipidcontent of fresh prawn decreased gradually with the storage period and at the end of the 16 weeks frozen storage it decreased from 2.4±0.16% to 1.24 ±0.13% and for the salt-boiled frozen prawn it decreased from2.56 ±0.11% to 1.68 ±0.26%. The initial ash content of fresh prawn decreased gradually with the storage period and at the end of the 16 weeks frozen storage, it decreased from 2.42±0.21% to 1.52±0.23%, whereas for salt-boiled prawn it decreased from2.89 ±0.19% to 1.93 ±0.18%.The initial TVB-N content increased gradually with the storage period and at the end of the 16 weeks of frozen storage it increased from 10.23±0.26 mg/100g to 32.01±1.36 mg/100g in fresh frozen prawn, where in the salt-boiled prawn, it was increased from 8.35 ±0.28 mg/100g to16.82 ±1.09mg/100g. From the findings it can be concluded that, the quality & nutritional composition of the salt-boiled prawn remains better than that of fresh un-boiled one during long storage period. So, the process for frozen storage of salt-boiled prawn at -20^0 C can be considered as a new approach in fish preservation.

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INTRODUCTION

Bangladesh is one of the world's most important inland fishing nations. Fisheries sector contributes 4.39% to GDP and 22.76% to agricultural GDP (DoF 2015). Fish supplements to about 60% of our daily animal protein intake. About 10% of the population is dependent directly and indirectly on the fisheries for their livelihood (DoF 2015). The shrimp industry also provides direct employment to over 1 million people who in turn support well over 3.5 million dependents. Shrimp and prawn, the second most important export commodities in Bangladesh next to textiles, with export values at around US$ 430 million mainly to the EU and the USA.Shrimp culture is one of central importance to the fisheries sector in Bangladesh particularly in the context of export earnings. It is the second most important source of foreign exchange earnings amounted US$ 543.84 million in 2012-2013 (DoF 2014).Bangladesh is considered one of the most suitable countries in the world for producing giant freshwater prawn (*Macrobrachium rosenbergii*)farming, because of its favorable resources and agro-climatic conditions(De Man JG 1879). A sub-tropical climate and a vast area of water bodies provide a unique opportunity for the production of *Macrobrachium* spp. Twenty-four species of freshwater prawns including 10 species of *Macrobrachium* are found in Bangladesh. Freshwater prawn (*M. rosenbergii*) farming is currently one of the most important sectors of the national economy and during the last two decades, its development has attracted considerable attention because of its export potential (Ahmed *et. al*. ,2008).

Fish and shellfish are perishable food, which spoils rapidly mainly due to bacterial action, enzymatic activity and chemical reaction. This is reflected in gradual developments of undesirable flavors, softening of the flesh and eventually substantial losses of fluid containing protein and fat. The quality of frozen prawn must be excellent importing countries are very conscious and rigid about the quality of frozen products. Quality of frozen products mainly depend on raw material quality, because, if the quality of raw prawn/shrimp are slightly deteriorated there is no way to overcome this loss. To keep the quality of prawn in good condition for long storage period, before freezing some techniques can be applied. Salt-boiling is one approach which was applied here in this study to keep frozen stored prawn quality in good condition at -20^{0}C.

MATERIALS AND METHODS

The study was conducted during the months of July, 2015 to October, 2015 and the fresh prawn (*Macrobrachium rosebergii*) was collected from Mymensingh Mechhua Bazar (fish market), Mymensingh Town, Dhaka, Bangladesh.

Transportation of the samples to the laboratory

The Collected prawn species were transported to the laboratory of The Department of Fisheries Technology, Bangladesh Agriculture University (BAU), Mymensingh with sufficient ice in an insulated box.

Treatment given to the sample

After arriving to the BAU laboratory, the collected samples were divided into two parts. Then one part of the sample was treated through a boiling procedure (2.5% salt) within a stewpot on a gas stove for about 10-12 minutes. Then the boiled samples were kept in a plate at room temperature for cooling for about 20 minutes and then made the both two part of the sample ready for biochemical analysis as raw sample. The remaining samples were kept in several boxes marked as fresh and salt-boiled prawn and put into a freezer at -20°C for studying the proximate composition changes in fresh and salt-boiled prawn during frozen storage

Sampling procedure

The frequency of monitoring was once in two weeks up to four month (16 weeks). Frozen prawn was thawed and then moisture on body surface was sucked with tissue paper. Only fish muscle was collected for examination. Then the muscle was chopped and finally ground with a blender for homogenous mixture.

Biochemical analysis

Organoleptic assessment

Physical characteristics such as color, odor, taste, flavor and texture of fresh water prawn (*Macrobrachium rosenbergii*) were observed by organoleptic method (Howgate *et al*., 1992).

Proximate composition

AOAC (1980)method was followed for analysis of proximate composition of the fresh and frozen prawn.

Moisture: The moisture was calculated with the following formula:

$$\text{Moisture content (\%)} = \frac{\text{Weight of wet material - Weight of dry material}}{\text{Weight of wet material}} \times 100$$

Ash: The ash was calculated with the following formula:

$$\text{Ash content (\%)} = \frac{\text{Weight of ash}}{\text{Weight of sample}} \times 100$$

Crude Protein: The Kjeldhal method was used to determine protein content of the samples (AOAC method). In this case total nitrogen (%) was calculated by using the following formula:

Total nitrogen: Total nitrogen was calculated by the following formula:

$$\text{Nitrogen (\%)} = \frac{\text{ml of Acid titrated x normality of acid titreated x milli equlvalent of N (0.014)}}{\text{Weight of sample}} \times 100$$

% of crude protein= Nitrogen% × 6.25

Lipid: Lipid content was determined by soxhlet apparatus. Following formula was used.

$$\text{Lipid content (\%)} = \frac{\text{Weight of lipid}}{\text{Weight of sample}} \times 100$$

Total Volatile Base-Nitrogen (TVB-N)

For chemical evaluation of shelf-life TVB-N test was used. Total Volatile Base Nitrogen (TVB-N) was determined according to AOAC method. The result can be calculated by the following formula-

$$\text{TVB-N (mg/100g sample)} = \frac{\text{ml of titrant required x 0.014 x Normality of titrant}}{\text{Weight of sample (gm)}} \times 100$$

RESULT AND DISCUSSION

The result of this study showed the organoleptic and proximate compositional changes, TVB-N changes and their comparison in fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C. The observation of changes in proximate composition of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage was followed once in two weeks of time interval. During 2nd week there was no significant changes occurred and observation of 10th week was avoided. Here, Table 1 shows the organoleptic changes or changes in physical characteristics of fresh and salt-boiled prawn (*Macrobrachium rosenbergii)*respectively during frozen storage at -20^0 C. Table 2shows the initial proximate composition of fresh and salt-boiled prawn and Table 3 shows changes in proximate composition of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C, Table 4,5,6,7,8 shows the comparative changes in moisture, protein, lipid, ash and TVBN respectively between fresh and salt-boiled prawn during frozen storage at -20^{0}C**.**

Organoleptic assessment

During initial to 16th weeks of freshness test, the hedonic scores are 1.64, 1.92, 2.60, 3.60 and 5 respectively for the fresh prawn which fall into following grades A, A, B, B, C and are commented as excellent, excellent, acceptable, good and rejected level respectively (Table 1). In case of salt-boiled prawn, during initial to 16th weeks of freshness test, the hedonic scores are following 1.50, 1.62, 2.24, 2.80 and 3.25 respectively which fall into following grades A, A, B, B, B and commented as excellent, excellent, acceptable, good and acceptable level respectively (Table 1).

Farooqui (1978) reported that shrimp in ice maintained good quality for 0-2 days as judged by organoleptic quality was acceptable up to 7 days and rejected after 9 days without frozen storage.

Table 1. Changes in physical characteristics of fresh and salt-boiled prawn (*Macrobrachium rosenbergii)* during frozen storage at -20^{0}C

	Weeks of observation	Organoleptic quality	Defect point	Overall quality	Grade
FRESH PRAWN	0	Fresh bright appearance, soft and firm texture, white color of flesh, with characteristics of neutral odor	1.64	Excellent	A
	4	Fresh, bright appearance, slightly soft & firm texture, natural colour of flesh, with characteristics of neutral odor	1.92	Excellent	A
	8	Bright appearance, slightly soft & firm texture, natural colour of flesh, with characteristics of neutral odor,	2.60	Excellent/Acceptable	B
	12	Definite dullness and loss of brightness, softening texture, brownish red or pink color with ammonical odor	3.60	Good / Acceptable	B
	16	Dull appearance, discolor and rotten odor with characteristics of flesh and juice texture	5	Rejected	C
	0	Bright shining appearance, firm texture, reddish boiled color of body, with characteristics of neutral odor	1.50	Excellent	A
	4	Bright shining appearance, firm texture, reddish boiled colour of shell & muscle, with characteristics of neutral odor	1.62	Excellent	A
	8	Bright appearance, firm & elastic texture, reddish boiled color of shell &muscle, with characteristics of neutral odor	2.24	Excellent/Acceptable	B
	12	Slight loss of brightness, consistent elastic texture, fade red color of shell &muscle, with characteristics of neutral odor	2.80	Good / Acceptable	B
	16	Moderately loss of brightness, elastic texture, fade red color of shell & muscle, with characteristics of neutral odor	3.25	Good /Acceptable	B

Table 2. Proximate composition of fresh and salt-boiled prawn (*Macrobrachium rosenbergii)* at initial stage

Parameters	Fresh Prawn (%)	Salt-boiled Prawn (%)
Moisture	71.27	64.28
Protein	22.49	29.71
Lipid	2.42	2.61
Ash	2.45	2.96

*Wet weight basis

Table 3. Change in proximate composition of fresh and salt-boiled prawn *(Macrobrachium rosenbergii)* during frozen storage at -20^0 C

	Weeks of observation	Moisture	Protein	Lipid	Ash
FRESH PRAWN	0	64.35 ± 0.39	29.69 ± 0.28	2.56 ±0.11	2.88 ±0.19
	4	64.82 ± 0.31	28.90 ± 0.26	2.37 ±0.13	2.75 ±0.13
	6	65.66 ± 0.48	27.85 ± 0.25	2.25 ±0.12	2.62 ±0.11
	8	66.61 ± 0.29	26.33 ± 0.21	2.21 ±0.14	2.43 ±0.18
	12	68.16 ± 0.36	24.26 ± 0.38	1.93 ±0.18	2.20 ±0.11
	16	70.38 ± 0.35	22.89 ± 0.29	1.68 ±0.26	1.90 ±0.18
	0	71.45 ± 0.33	22.36 ± 0.45	2.40 ± 0.16	2.42 ± 0.21
	4	72.57 ± 0.33	21.57 ± 0.39	2.29 ± 0.18	2.32 ± 0.21
	6	73.08 ± 0.57	20.9 2± 0.44	2.11 ± 0.16	2.24 ± 0.2
	8	74.12 ± 0.44	19.83 ± 0.32	1.88 ± 0.29	2.07 ± 0.19
	12	76.21 ± 0.46	17.78 ± 0.4	1.51 ± 0.2	1.79 ± 0.17
	16	78.12 ± 0.56	16.24 ± 0.27	1.24 ± 0.13	1.52 ± 0.23

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Comparative changes in moisture (%)

The initial moisture content of the fresh prawn during frozen storage was 71.45 ± 0.33%, for the 4th week it increased to 72.57 ± 0.33%, in the 6th week it was increased to 73.08 ±0.57%, in the 8th week it was increased to 74.12 ± 0.44%, in the 12th week it was increased to 76.21 ± 0.46% and at the 16th week the moisture content showed 78.12 ± 0.56% value respectively (Table 4), on the other hand for the salt-boiled prawn, during frozen storage the initial moisture content was 64.35 ± 0.39%, for the 4th week it increased to 64.82 ± 0.31%, in the 6th week it was increased to 65.66 ± 0.48%, in the 8th week it was increased to 66.61 ± 0.29%, in the 12th week it was increased to 68.16 ± 0.36% and at the 16th week the moisture content showed 70.38 ± 0.35% value respectively (Table 4). The significant variation of moisture content between fresh and salt-boiled prawn is due to salt-boiling of the prawn (*Macrobrachium rosenbergii*) before frozen storage. Salt-boiling reduced the initial moisture content from the muscle of the prawn (Table 4). This is due to the free drip gain by the muscle in frozen storage.Peplow*et al.* (1975) indicated that in 0 days moisture content of shrimp was 77.6%, in 7 days it increased to 81.3% and after 14 days the moisture was increased to 83.5%. The increase of moisture was similar to present study.

Table 4. Comparative changes in moisture (%) of fresh un-boiled and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C

Weeks of observation	Moisture (%) of fresh frozen prawn	Moisture (%) of Salt-boiled frozen prawn
0	71.45 ± 0.33	64.35 ± 0.39
4	72.57 ± 0.33	64.82 ± 0.31
6	73.08 ± 0.57	65.66 ± 0.48
8	74.12 ± 0.44	66.61 ± 0.29
12	76.21 ± 0.46	68.16 ± 0.36
16	78.12 ± 0.56	70.38 ± 0.35

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Table 5. Comparative changes in protein (%) of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C

Weeks of observation	Fresh frozen prawn	Salt-boiled prawn
0	22.36 ± 0.45	29.69 ± 0.28
4	21.57 ± 0.39	28.90 ± 0.26
6	20.9 2± 0.44	27.85 ± 0.25
8	19.83 ± 0.32	26.33 ± 0.21
12	17.78 ± 0.4	24.26 ± 0.38
16	16.24 ± 0.27	22.89 ± 0.29

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Comparative changes in protein (%)

During frozen storage the initial protein content of the fresh prawn was 22.36 ± 0.45%, for the 4th week it decreased to 21.57 ± 0.39%, in the 6th week it was decreased to 20.92 ± 0.44%, in the 8th week it was decreased to 19.83 ± 0.32%, in the 12th week it was decreased to 17.78 ± 0.4% and at the 16th week the protein content showed 16.24 ± 0.27% value respectively (Table 5). On the other hand, for the salt-boiled prawn during frozen storage the initial protein content was 29.69 ± 0.28%, for the 4th week it decreased to 28.90 ± 0.26%, in the 6th week it was decreased to 27.85 ± 0.25%, in the 8th week it was decreased to 26.33 ± 0.21%, in the 12th week it was decreased to 24.26 ± 0.38% and at the 16th week the protein content showed 22.89 ± 0.29% value respectively (Table 5). The variation in protein may be due to the free drip loss by the muscle in frozen storage. The moisture (%) is gradually increased here; on the other hand, the percentage of protein is gradually decreased on weight basis (Table 5). Protein content in prawn muscle decreased considerably with storage period. Such decrease in protein during storage at -20^0 C is largely or entirely due to formation of free drip accompanied by loss of some sarcoplasmic protein (Tarr, 1965). Side of the side aggregation of myosin molecules occurred during long term frozen storage which might cause freeze denaturation of muscle protein (Connell JJ 1995). Protein alteration was probably linked with decreased water holding capacity of thawed prawn muscle. Protein supply energy in human cell, possess anti-oxidant activity, helps many biological functions e.g. antimutagenecity, antiaging. Peplow*et al.* (1975) indicated that in 0 days protein content of shrimp was 19.6%, in 7 days it was increased to 16.5% and after 14 days it was increased to 14.7%.The author found certain difference but the decrease of protein happened similarly.

Comparative changes in lipid (%)

During frozen storage for fresh prawn (*Macrobrachium rosenbergii*) the initial lipid content decreased gradually with the storage period and at the end of the 16 weeks frozen storage it decreased from 2.4±0.16% to 1.24 ±0.13% ,on the other hand for salt-boiled prawn it decreased from2.56 ±0.11% to 1.68 ±0.26% (Table 6).The initial lipid content of the fresh prawn during frozen storage was 2.4 ±0.16%, for the 4th week it decreased to 2.29 ±0.18%, in the 6th week it was decreased to 2.11 ±0.16%, in the 8th week it was decreased to 1.88 ±0.29%, in the 12th week it was decreased to 1.51 ±0.20% and at the 16th week the lipid content showed 1.24 ±0.13% value respectively. On the other hand for the salt-boiled prawn during frozen storage the initial lipid content was 2.56 ±0.11%, for the 4th week it decreased to 2.37 ±0.13%, in the 6th week it was decreased to 2.25 ±0.12%, in the 8th week it was decreased to 2.11 ±0.14%, in the 12th week it was decreased to 1.93 ±0.18% and at the 16th week the lipid content showed 1.68 ±0.26% value respectively (Table 6).A slight change in lipid content during storage period could be explained by their individual variation since lipid content varies even within the same species and different species depending on age, sex, food availability etc. Peplow *et al.* (1975) indicated that initial lipid content of shrimp was 0.9%, in 7 days it was increased to 0.8% and after 14 days it was increased to 0.8%.The author found certain difference but the decrease of lipid followed the agreement.

Table 6. Comparative changes in lipid (%) of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C

Weeks of observation	Fresh frozen prawn	Salt-boiled frozen prawn
0	2.40 ± 0.16	2.56 ±0.11
4	2.29 ±0.18	2.37 ±0.13
6	2.11 ±0.16	2.25 ±0.12
8	1.88 ±0.29	2.11 ±0.14
12	1.51 ±0.2	1.93 ±0.18
16	1.24 ±0.13	1.68 ±0.26

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Table 7. Comparative changes in ash (%) of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C

Weeks of observation	Ash (%) of fresh frozen prawn muscle	Ash (%) of salt-boiled frozen prawn muscle
0	2.42 ±0.21	2.89 ±0.19
4	2.32 ±0.21	2.75 ±0.13
6	2.24 ±0.2	2.62 ±0.11
8	2.07 ±0.19	2.43 ±0.18
12	1.79 ±0.17	2.21 ±0.11
16	1.52 ±0.23	1.93 ±0.18

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Table 8. Comparative changes in TVB-N mg/100g of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage at -20^{0}C

Weeks of observation	TVB-N mg/100g of fresh frozen prawn muscle	TVB-N mg/100g of salt-boiled frozen prawn muscle
0	10.23 ±0.26	8.35 ±0.28
4	15.18 ±0.49	9.84 ±0.44
8	19.22 ±0.75	11.12 ±0.77
12	28.81 ±1.08	14.59 ±0.99
16	32.01 ±1.36	16.82 ±1.09

*Mean value ± standard deviation of 3 individual measurements (Wet weight basis)

Comparative changes in ash (%)

The results of the comparative changes in ash content of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during frozen storage is presented in table 7. During frozen storage for fresh prawn (*Macrobrachium rosenbergii*) the initial ash content decreased gradually with the storage period and at the end of the 16 weeks frozen storage it decreased to 1.52±0.23% from 2.42±0.21%, on the other hand for boiled prawn it was 2.89 ±0.19% to 1.93 ±0.18% (Table 7). During frozen storage the initial ash content of the fresh prawn was 2.42±0.21%, for the 4th week it decreased to 2.32±0.21%, in the 6thth week it was decreased to 2.24±0.2%, in the 8th week it was decreased to 2.07±0.19%, in the 12th week it was decreased to 1.79±0.17% and at the 16th week the ash content showed 1.52±0.23% value, respectively. On the other hand for the boiled prawn during frozen storage the initial ash content was 2.89 ±0.19%, for the 4th week it decreased to 2.75 ±0.13%, in the 6th week it was decreased to 2.62 ±0.11%, in the 8th week it was decreased to 2.43 ±0.18%, in the 12th week it was decreased to 2.21 ±0.11% and at the 16th week the ash content showed 1.93 ±0.18% value respectively (Table 7).The variation of ash contents may occur due to boiling of the prawn (*Macrobrachium rosenbergii*) before frozen storage. There was moderate difference in ash percentage up to 4th week of observation but significant differences were observed in 6 to 16 weeks of observation. The greater variation in ash percentage was observed in 8th week (Figure 7). Peplow *et al.* (1975)indicated that in 0 days ash content of shrimp was 1.8%, in 7 days it was increased to 1.4% and after 14 days it was increased to 1.0%.The author found certain difference but the decrease of ash indicated the similarly.

Comparative changes in Total volatile base Nitrogen (TVB-N)

The results of the comparative changes in TVB-N content of fresh and boiled prawn (*Macrobrachium rosenbergii*) during frozen storage are presented in table 8. During frozen storage for fresh prawn (*Macrobrachium rosenbergii*) the initial TVB-N content increased gradually with the storage period and at the end of the 16 weeks frozen storage it increased from 10.23±0.26 mg/100g to 32.01±1.36 mg/100g,on the other hand for salt-boiled prawn it was increased from 8.35 ±0.28 mg/100g to16.82 ±1.09mg/100g at the storage period of 16 weeks (Table 8).

The initial TVB-N content of the fresh prawn during frozen storage was 10.23±0.26 mg/100g, for the 4th week it increased to 15.18±0.49 mg/100g, in the 8th week it was increased to 19.22±0.75 mg/100g, in the 12th week it was increased to 28.81±1.08 mg/100g and at the 16th week the TVB-N content showed 32.01±1.36 mg/100g value respectively, on the other hand for the salt-boiled prawn during frozen storage the initial TVB-N content was 8.35 ±0.28mg/100g, for the 4th week it increased to 9.84 ±0.44mg/100g, in the 8th week it was increased to 11.12 ±0.77mg/100g, in the 12th week it was increased to 14.59 ±0.99 mg/100g and at the 16th week the TVB-N content showed 16.82 ±1.09 mg/100g value respectively (Table 8). This may occur due to the free drip gain by the muscle in frozen storage.

The TVB-N content at initial frozen storage was more or less similar between fresh and boiled prawn. The variation was started from the 4th week. The most significant variation was observed in 16th week, during this period fresh frozen prawn was near to rejected condition whereas boiled prawn was remained in better condition. This may occur due to boiling of prawn before frozen storage. Boiling inactivate most of all the digestive enzymes and reduced the maximum microbial load. The available report suggested that the upper limit of TVB-N is 30 mg/100g was considered for fin fish acceptability (Connell JJ 1995). The increase in TVB-N with the laps of storage may be attributed to bacterial spoilage. However, the available information indicates that TVB-N mainly accumulated in fresh fish during the later phage of spoilage after the bacterial population had grown. Thus TVB-N was low during the storage period and only when the fish was near rejection level increasing amount of TVB-N were found.

CONCLUSION

From the above study it may be concluded that the research study has found various quality measuring aspects such as organoleptic characteristics, protein, moisture, lipid, ash and TVB-N of fresh and salt-boiled prawn (*Macrobrachium rosenbergii*) during sixteen weeks of time interval and the changes were significant for the fresh and salt-treated prawnat -18 to -20^{0}C of storage temperature. The proximate composition was in better and accepted condition for the salt-boiled prawn than the fresh one during sixteen weeks of observation. This is because of the use of salt in boiling water which had killed most of the bacteria of those prawns and inactivated their enzymatic activity, as a result the freshness of the salt-boiled prawn was kept in better and good condition after a storage period of sixteen weeks but on the other hand the fresh frozen prawn was rejected at the same period of time. So we can say that in case of long term frozen storage, using salt in boiling water can be applied to store the prawn for a better quality product in case of proximate composition, as well as in nutritional values than the frozen one. To establish as a recognized commercial procedure for frozen prawn, further research is necessary to establish a more reliable and developed processing technique for prawn as it is a highly demandable product exported to abroad from our country.

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