Adoption of Quality Control Measures in Centralised and Decentralised Prawn Peeling Units - A Comparative Study

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A comparative study on the infrastructural measures adopted in centralised and non centralised prawn peeling units was carried out. It was found that the centralised prawn peeling units had significantly high infrastructural facilities related to quality control compared to non centralised peeling units. Imposition of quality control measures helped to improve the quality standards of peeling sheds considerably.

Prawn is an important item of international trade of fish and fishery products. Hence quality control of prawn right from the time of catch, to the time of export is of great concern. Various schemes have been launched by the Government to observe stringent quality control measures. Norms for quality control have been given by institutes like Central Institute of Fisheries Technology (CIFT) and organisations like Marine Products Export Development Authority (MPEDA). An approved peeling shed is issued a licence from the concerned authority. Still, a large number of units mostly attached to households are actively engaged in prawn peeling. The objective of the present study is to find the infrastructural facilities adopted for quality control in such units in comparison to the well organised units having government approval.

Materials and Methods

Kochi area being a major centre of prawn peeling and processing in India was selected for the study. The study was conducted in 200 prawn peeling units located in 14 different localities.

The peeling units having Government approval and functioning in an organised manner in specially made buildings were categorised into centralised units and unauthorised peeling units actively engaged in peeling operation and mostly attached to households but lacking approval were classified into decentralised units. Out of the total sample of 200 sheds, 150 units came under centralised category and 50 under decentralised category.

Nine quality control measures, viz, recommended floor facilities, lighting and ventilation, construction and layout, facilities in surroundings, availability of water and ice, sanitary facilities, tables and utensils, working facilities in peeling hall and toilet facilities were selected for the study. The location and type of construction of the peeling shed, total floor area, facilities for weighing and storing prawn, type of ceiling, construction and washability of the wall and floor, slope of the floor, drainage system, protection using wire meshes to prevent entry of rodents and flies, tables of required specifications, types of utensils, removal of waste material, source of water, potability of water, adequacy of water, chlorination of water, presence of overhead tank, protection of overhead tank from contamination, hygienic handling of ice in hall, quality and colour of ice used, quantity of ice used, existence of ice store room, adequacy of light in peeling shed, protection by wire meshes on suspended lights, self closing mechanism of doors, chemicals and antibiotics used, facilities for hand and feet washing, arrangements for discharge of

drainage water, sewage disposal, number of toilets available for workers, type of toilet and distance from peeling hall, self-closing doors, water and soap availability in toilets and usage of headgear by workers were the main factors studied under the nine items related to quality control.

Data collected were tabulated and scores were assigned arbitrarily for various quality control measures. The mean score for each item of infrastructure facility and average score of centralised and decentralised units for each item were worked out and t-test was applied to find whether the scores obtained for quality control measures in the two types of peeling sheds were significantly differing from the mean score, using the formula.

$$t = \frac{\bar{x} - \mu}{s / \sqrt{n}}$$

To see whether any significant difference existed between centralised and decentralised units in relation to quality control measures, the mean scores were worked out for both the types of sheds separately and standard deviation were calculated. The value of t were calculated using the formula,

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Results and Discussion

Table 1 revealed that centralised prawn peeling units had significantly high infrastructural facilities related to quality control.

Facilities related to lighting and ventilation, construction and layout, facilities in surroundings, water and ice, sanitary facilities, tables and utensils, working facilities in peeling hall and toilet facilities were found highly above the mean score in centralised units. Decentralised units were found significantly below the mean score in the case of lighting and ventilation,

Table 1. *Quality control measures adopted in prawn peeling units*

Parameters		Centralised units (n_1)		Decentralised units (n_2)	
	μ	$\bar{x}$	't' value	$\bar{x}$	't' value
Floor facilities	4.50	4.92	1.69*	4.16	1.45
Lighting & ventilation	9.00	11.05	16.20**	7.34	5.75**
Construction and layout	6.00	7.39	20.22**	5.22	3.70**
Facilities in surroundings	9.00	11.05	22.05**	8.74	1.11
Water and ice	17.00	18.65	9.44**	14.70	7.97**
Sanitary facilities	6.00	6.97	18.28**	5.64	2.02*
Tables and utensils	12.50	13.26	5.43**	9.48	3.45**
Working facilities in peeling hall	3.00	3.32	5.21**	2.50	5.37**
Toilet facilites	6.00	6.27	2.76**	4.84	6.31**

$P < 0.05$*; $P < 0.01$**; $n_1 = 150$; $n_2 = 50$

Table 2. *Analysis of the difference between centralised and decentralised units in respect to quality control measures*

Parameters	Standard deviation	't' value
Floor facilities	2.76	1.62
Lighting and ventilation	1.69	12.79**
Construction and layout	1.03	11.94**
Facilities in surroundings	1.29	10.50**
Water and ice	2.12	10.97**
Sanitary facilities	0.84	9.30**
Tables and utensils	3.05	7.27**
Working facilities in peeling hall	0.71	6.83**
Toilet facilities	1.22	6.81**

** = $P < 0.01$

construction and layout, water and ice, tables and utensils, working facilities in peeling hall and toilet facilities. Sanitary facilities were found below the mean score (at 5% level of significance). Floor facilities and facilities in surroundings were found to have no significant deviation from mean score in case of decentralised units. Majority of them had washable clean floors with proper slope and drainage. The surroundings were neat and had no stagnant water or dumps, no sewage or animal sheds nearby and good approach road.

Table 2 revealed highly significant difference between centralised and decentralised units in all parameters except floor facilities. The standard deviation of floor facility was found quite high which indicated high degree of variation in respect of this parameter. Lighting and ventilation, construction and layout, facilities in surroundings, availability of recommended tables and utensils, peeling hall facilities and toilet facilities were found in better level at centralised units compared to decentralised units.

The study clearly brought out the quality control measures available in centralised and decentralised prawn peeling units and the extent of difference between the two units with respect to each parameter. The centralised units built according to Government guidelines and being inspected and advised by concerned officials proved to be remarkably different from the decentralised units in respect to all parameters. It is concluded from the study that imposition of quality control measures help in improving the standards to a considerable extent.

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