

ACT HEALTH PROTECTION SERVICE

MICROBIOLOGICAL

QUALITY OF

COOKED PRAWNS

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INTRODUCTION

This short survey was undertaken to determine the microbiological quality of cooked prawns available in the ACT. Cooked prawns are a very popular ready-to-eat (RTE) food that is widely available in retail establishments across the ACT.

STANDARDS

Food Standards Australia New Zealand (FSANZ) sets out the microbiological limits for this food in Standard 1.6.1 of the Food Standards Code. The Standard lists maximum allowable levels of food borne micro-organisms for different classes of foods, and is used to determine the level of microbiological contamination that is considered to be a significant risk to public health.

Cooked prawns fall under the class of cooked crustacea. The microbiological limits for this group are set out in Table 1.

Table 1¹

Food	Micro-organism	n	c	m*	M*
Cooked crustacea	coagulase-positive <i>Staphylococci</i> /g	5	2	10 ²	10 ³
	<i>Salmonella</i> spp/25g	5	0	0	
	Standard Plate Count (SPC)/g	5	2	10 ⁵	10 ⁶

* viable micro-organisms

n = minimum number of sample units examined from a batch of food

c = maximum allowable number of defective samples

m = acceptable microbiological level for a micro-organism in a sample unit

M = microbiological level at which one sample unit exceeding would result in the whole food batch being rejected

SURVEY

The survey was conducted between 18 February 2008 and 31 March 2008. Health Protection Service (HPS) officers randomly sampled seven batches of prawns from five different retail outlets across the ACT. The HPS processed five sub-samples from each batch of prawns for compliance to the above standard. The SPC and coagulase-positive *Staphylococci* analyses assessed the samples for overall hygiene quality, while the *Salmonella* spp test determined the presence or absence of this bacterial pathogen.

RESULTS

SPC

The SPC is a measure of the level of viable, aerobic micro-organisms in a food sample when standard growth conditions are applied. This is a test commonly applied to assess the overall microbial quality of the food as an indication of the hygiene control exercised during the production, transport and storage of the food.

The SPC counts ranged from 6×10^2 to 4.1×10^6 . Three (43%) of the batches of prawns from two (40%) of the five establishments sampled exceeded the maximum allowable limits for SPC. An SPC count exceeding 1.0×10^6 is a failed result with regard to the

Standard. The SPC counts exceeding the standard are not considered excessive as they are within the same order of magnitude.

The batches of prawns sampled at establishment one were re-tested on 3 March 2008 and again on 31 March 2008. In both instances, the SPC counts failed to comply with the Standard, as the batches tested may have come from the same consignment of prawns. New batches of prawns from establishment one was sampled and retested on 15 April 2008. On this occasion, the SPC counts complied with the Standard.

Establishment two also had batches of prawns re-tested on 31 March 2008 and 15 April 2008. In both instances, the SPC counts failed to comply with the Standard.

Due to the non-compliances, follow-up inspections of both establishments were conducted. The inspectors did not detect any deficiencies in their equipment or food handling practices. Both retailers source their prawns from different wholesalers at the Sydney Fish Markets.

Coagulase Positive *Staphylococci*

Contamination of foods with coagulase-positive *Staphylococci* occurs as a result of improper food handling practice, often followed by time/temperature abuse. Twenty five of the thirty five samples (71% only, this was due to a supplier shortage of supplements needed for testing) were tested for coagulase-positive *Staphylococci*. The samples tested complied to the Standard with counts reported of less than 50 coagulase-positive *Staphylococci* per gram of sample tested.

Salmonella spp.

Salmonella spp. was not detected in any of the thirty five samples tested.

Consumption of foods containing *Salmonella spp.* can result in food borne illness. All foods purchased in the RTE category, such as cooked crustacean, should be free from these pathogens.

DISCUSSION

The investigation carried out by the HPS into the two retail establishments that produced high SPC levels revealed there were no deficiencies in equipment and correct food handling practices were followed. The results suggest that some batches of prawns may already have had a high level of micro-organisms when received by the retailer. Transport from the wholesaler to the retailer was monitored by the retailer and was under satisfactory temperature controlled conditions. The HPS determined that both batches of prawns sampled were from the same consignment that was purchased from the Sydney Fish Markets. The subsequent resample on 15 April 2008 that complied with the Standard was from a newer consignment.

There was no pathogenic *Salmonella spp.*, or coagulase-positive *Staphylococci* detected in any of the samples tested.

CONCLUSION

The survey indicated that the microbial quality of cooked prawns sold in the ACT is satisfactory, as none of the samples tested contained pathogenic bacteria that would

pose a risk to public health. This survey covered only a small portion of prawn retailers in the ACT. Increasing the scope of retailers and including wholesalers would give a better indication of the microbial quality of RTE prawns across the whole of the ACT.

BIBLIOGRAPHY

1. The Food Standards Code, Standard 1.6.1 – Microbiological Limits for Food. (FSANZ)
2. Guidelines for the microbiological examination of ready-to-eat foods. (FSANZ – December 2001)