ASSESSMENT OF MICROBIAL LOAD ON HYGIENICALLY SLAUGHTERED PIG CARCASSES

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ABSTRACT

A study was carried out to assess the Total Viable Count and *E.coli* count in both fresh and chilled (24 hrs) pork samples from 15 hygienically slaughtered pig carcasses. The results revealed that 24 hrs chilling mildly reduced the total viable count but there was good reduction in *E.coli* count.

KEY WORDS: Pork samples , Fresh & chilled Microbial load

INTRODUCTION

The pork consumption in India is gradually increasing, which may be due to the fact that of increasing awareness of hygienic piggery activity and slaughter methods. Moreover, the regulatory activities aimed at assuring hygienic adequacy of the meat supply have been implemented in most of the developed countries and the same have to be adapted in India to further increase in pork consumption. The carcass contamination of pork after slaughter is usually variable and may consist of $10^1 – 10^5$ aerobic mesophiles per cm^2, depending on the slaughter condition (Nortje and Naude, 1981). Common contaminants of pig carcass are Gram – negative rods including *Pseudomonas* spp., *Morexella* spp., *Stapylococcus* spp., *Enterobacteriaceae* and fecal Streptococci (Anon.1980: Nortje *et al* 1990). The *Yesinia enterocolitica* in Pork (Fukushima et al., 1991) is dangerous to human health. Hence the present study was undertaken to assess the microbial load of the carcass samples obtained from pigs that were hygienically slaughtered at Department of Meat Science and Technology, Madras Veterinary College, Chennai.

MATERIALS AND METHODS

Pork samples from 15 slaughters in a period of 3 months were taken for this study. The Microbiological procedures to assess the Total Viable Count and *E.coli* were carried out as per the methods described by APHA (1976) and APHA (1984) respectively. Five grams of meat samples were taken aseptically from the thigh and neck region of fresh (hot) and chilled (24 hrs) pig carcasses that were hygienically slaughtered and homogenized with 45 ml of 0.1% sterile peptone water to obtain an initial dilution of 10^{-1}. Subsequently serial ten fold dilutions were made upto 10^{-6} in pre sterilized tubes containing 9 ml of 0.1% peptone water. The Plate Count Agar and Violet Red Bile Agar were used to assess Total Viable Count and *E.coli* count respectively. The counts are expressed as CFU/g of pork samples.

RESULTS AND DISCUSSION

The results are furnished in the following table

Average microbial load of Pork samples of hygienically slaughtered Pig carcasses.

Count	Sample	Fresh	Chilled	t Test	F value
Total viable count	15	3.73 ± 0.18	3.73 ± 0.20	0.62^{NS}	0.55
E. coli	15	1.50 ± 0.35	0.96 ± 0.31	2.65*	0.02

NS – , * - P = 0.05

The results revealed that Total Viable Count both in fresh and chilled carcasses ranged between 2 log CFU/g and 4 log CFU/g. The *E.coli* count in some carcasses ranged between 2 log CFU/g and 3 log CFU/g but in most of the samples “Nil” count was obtained. Generally the Total Viable Count ranges between 5 and 7 log CFU/g in unsophisticated slaughter houses but here the count is less, this is due to the hygienic measures adopted in each and every steps of slaughter process. The statistical analysis also revealed that there was no significant difference (P> 0.05) between fresh and chilled pork samples in Total Viable Count. But there was significant difference (P= 0.05) in *E. coli* count. In overall observation it was concluded that 24 hours chilling (2 - 4° C) mildly reduced the Total Viable Count but there was good reduction in *E.coli* count.

REFERENCES

Anon. (1980) Microbial ecology of foods. Vol. 2: Food Commodities. International commission on Microbiological specifications for foods, Academic press, NY.

APHA, 1976. Compendium of methods for Microbiological Examination of Foods, (Ed) M.L.Speck. American Public Health Association, Washington, DC.

APHA, 1984. Compendium of methods for Microbiological Examination of Foods, 2nd Edn.(Ed) M.L.Speck. American Public Health Association, Washington, DC.

Fukushima, H., Maruyama, K., Omori, I., Ito, K. and Iorihara, M. (1991) Contamination of pigs with Yersinia at the slauterhouse. *Fleischwirtsch .* 1, 50. In Advances in meat research series Volume 9 .

Nortje, G. L. and Naude, R.T. (1981) *J. Food Prot.* 44, 355.

Nortje, G. L., Nel, L., Jordaan, E., Badenhorst, K., Goedhart, G., Holzapfel, W.H. and Grimbeek, R.J. (1990) *J. Food Prot*. 53, 411.

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