TITTLE: Assessment of official data on microbiological and production parameters from poultry slaughtered under Federal Inspection: a basis for a Risk Assessment

AUTHORS: Pessoa, J.P.[1], Hessel, C.T.[1], Decol, L.T. [1], Lima, M.S. de[2], Isolan, L.W.2, Tondo, E.C.[1]

INSITUTION: [1] Laboratório de Microbiologia e Controle de Alimentos, Instituto de Ciência e Tecnologia de Alimentos, Universidade Federal do Rio Grande do Sul (ICTA/UFRGS), Av. Bento Gonçalves, 9500, prédio 43212, Campus do Vale, Agronomia, CEP. 91.501-970 Porto Alegre/RS, Brasil. [2] Ministério da Agricultura, pecuária e Abastecimento (MAPA). Serviço de Inspeção de produtos de Origem Animal (SIPOA). Av. Loureiro da Silva, 515 - Centro Histórico, CEP 90010-420, Porto Alegre/RS, Brasil.

ABSTRACT:

Poultry production has a great impact in Brazilian economy, since Brazil is the leader on chicken exportation. Several control measures have been implemented in Brazilian slaughterhouses, however, *Salmonella* spp. still be isolated from foods and cause foodborne outbreaks. Risk Analysis (RA) is a tool that allows evaluates the real risk present in a food, being composed by three processes: Risk Management, Risk Assessment and Risk Communication. The Risk Assessment focus in obtain real data and scientific information about a specific hazard and if it is eliminated or controlled throughout processing. Thus, the objective of this work is to compile and evaluate the Brazilian official data concerning the prevalence of *Salmonella* spp., indicator microorganisms' counts, and production parameters from poultry slaughterhouses under Federal Inspection in the State of Rio Grande do Sul (RS), which are basis for a Risk Assessment. From a scientific partnership with the Ministry of Livestock and Food Supply (MAPA) official reports were compiled and analyzed. The database was built in Excel 2016 *software* and statistically analyzed using the SPSS version 21.0. For all statistical analyses a significance level of 0.05 was adopted. The database considered 6594 reports between October 2014 and March 2017. Its representing all poultry slaughterhouses (n=18) under Federal Inspection in RS. The results indicate 3.17% prevalence of *Salmonella* spp. in 2016. Before *chiller* the *Entetobacteriaceae* and viable aerobic mesophilic microorganisms at 30ºC counts were, respectively, 3.23 ± 0.98 CFU/g and 4.64 ± 0.86 CFU/g. After *chillller* the counts were 2.07 ± 0.63 CFU/g and 3.50 ± 0.86 CFU/g, respectively. The statistical analysis of the data demonstrates a significant reduction on microbial load of the product after this stage of processing (Tukey's test, $p < 0.001$ for both microorganisms). The carcass temperature after *chiller* was reduced by approximately 0.2 °C, being this reduction not significant (Tukey test, $p = 0.65$). In this work it was observed a low *Salmonella* spp. prevalence when compared to other countries. Low microbial counts of indicator microorganisms were observed before the *chiller* as well. The *chiller* step does not reduce the carcass temperature as expected. The scenario evaluated shows the high microbial quality from poultry slaughtered under Federal Inspection in RS. However, production parameters need to be controlled in order to keep the safety of the product.

Keywords: Risk Assessment, *Salmonella* spp., poultry

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