

TITLE: ASSESSMENT OF THE HARMLESSNESS OF *IN NATURA* COLD BEEF, PRODUCED IN MATO GROSSO – BRASIL

AUTHORS: MACHADO, M.A.M.; CASTRO, V.S.; MÜLLER, B.; CARVALHO, R.C.T.; FIGUEIREDO, E.E.S.

INSTITUTION: UNIVERSIDADE FEDERAL DE MATO GROSSO (UFMT), FACULDADE DE NUTRIÇÃO (FANUT), LABORATÓRIO DE MICROBIOLOGIA MOLECULAR DE ALIMENTOS (LABMMA), AV. FERNANDO CORRÊA DA COSTA, Nº 2367 - BAIRRO BOA ESPERANÇA. CEP 78060-900, CUIABÁ – MT, BRASIL

ABSTRACT:

Currently, Brazil is the largest beef exporter in the world and the state of Mato Grosso is the main meat producer in the country. To maintain product competitiveness and market expansion, sanitary hygienic control of the whole process becomes indispensable to ensure harmless and high quality beef production. This is especially true now due to the recent events of the so-called "weak meat" operation that raised doubts about Brazilian meat safety. The purpose of this study was to assess the harmlessness of cold and vacuum-packed beef produced in Mato Grosso/Brazil. A total of 52 beef samples of different meat cuts with average weight of 1.5 kilo each, were evaluated, obtained from nine slaughterhouses refrigerators with Federal Inspection Service (SIF), all Export-enabled. The samples were submitted to the method for the determination of the Most Probable Number (MPN) of total coliforms (CT) and thermotolerant (C.45°C) bacteriological, and *Escherichia coli*, *E. coli* Shiga toxinogenic (STEC) and *Salmonella* spp. evaluations. Suspicious colonies were subjected to Polymerase Chain Reaction (PCR), STEC for gene research *Stx1*, *Stx2*, *y-eaeA*, *ehxA*, *+93uidA* and *Salmonella* spp gene amplification *HilA* (Specific species). The data obtained was compared to the microbiological references and patterns established by the Pan American Organization (OPAS)/World Health Organization (OMS) and the Brazilian National Sanitary Surveillance Agency (ANVISA/BRAZIL). The average MPN of CT and C.45°C was of 1.88×10^2 NMP/g and 9.0 NMP/g, respectively. *E. coli* was present in 9.6% (05/52) of the samples, while STEC was observed in 3.8% (02/52) and *Salmonella* spp in 5.7% (03/52) of the analyzed samples. The MPN average of total and thermotolerant coliforms are in agreement to both national and international legislations. However, the presence of *Salmonella* spp., *E. coli* and STEC in some samples indicated a low risk for salmonellosis and colibacillosis regarding the consumption of the evaluated beef samples.

Keywords: Coliforms, *E. coli*, STEC, *Salmonella* spp.

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