

TITLE: THE ANTIMICROBIAL RESISTANCE PROFILE OF *Listeria monocytogenes* ISOLATED FROM BEEF IN MATO GROSSO, BRAZIL

AUTHORS: TEIXEIRA, L.A.C.; CARVALHO, F.T.; CARVALHO, R.C.T.; FIGUEIREDO, E.E.S.

INSTITUTION: UNIVERSIDADE FEDERAL DE MATO GROSSO (UFMT), PROGRAMA DE PÓS-GRADUAÇÃO EM NUTRIÇÃO ALIMENTOS E METABOLISMO (PPG-NAM), LABORATÓRIO DE MICROBIOLOGIA MOLECULAR DE ALIMENTOS (LABMMA), AV. FERNANDO CORRÊA DA COSTA, Nº 2367 - BAIRRO BOA ESPERANÇA. CEP 78060-900, CUIABÁ – MT, BRASIL.

ABSTRACT:

Brazil is the largest beef exporter in the world and Mato Grosso contributes significantly to the national trade balance in exporting this product. To maintain competitiveness, it is necessary to investigate the presence of *L. monocytogenes*, since importing countries require the absence of this pathogen in meat, as this bacterium is the causative agent of human listeriosis. This disease can cause more severe consequences when strains present resistance to antibiotics used in clinical treatment. Herein, we aim to determine the antimicrobial resistance profile of *L. monocytogenes* isolated from beef produced in the Mato Grosso state. Fifty beef samples produced by 13 slaughterhouses were submitted to bacteriological analyses, and seven *L. monocytogenes* strains were isolated, which were subsequently submitted to antibiograms by agar diffusion. Twenty antimicrobial agents widely used in human and veterinary medical clinic were evaluated (Ampicillin, Cefoxitin, Cefepime, Azptheonam, Imipenem, Gentamicin, Erythromycin, Azithromycin, Chloramphenicol, Florfenicol, Nalidixic Acid, Ciprofloxacin, Enrofloxacin, Rifampicin, Sulphonamide, Trimetropine, Nitrofurantoin, Tetracycline). The inhibition of the growth zone diameters were interpreted according to the Clinical and Laboratory Standards Institute (CLSI). All seven *L. monocytogenes* isolated strains presented multi-drug resistance (MDR), i.e., presented resistance to three or more antimicrobial agents, including Aztreonam Cefoxitin, Sulfonamide, Cotrimoxazole, Trimethoprim, Cefepime, Ceftiofur, Nalidixic acid and Ampicillin. However, 100% of the isolated strains were sensitive to 11 antimicrobials (Ciprofloxacin, Rifampicin, Florfenicol, Nitrofurantoin, Enrofloxacin, Gentamicin, Tetracycline, Chloramphenicol, Imipenem, Azithromycin, Erythromycin). This indicates possible difficulties regarding listeriosis treatments transmitted through beef consumption, and points urgently to a need for a more rigorous control concerning promiscuous antibiotic use, both in the treatment of human and veterinary infections.

Key words: listeriosis; antibiotics; multi drug resistant (MDR) strains; meat; *Listeria monocytogenes*.

Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq/ Brasil)