

TITLE: OCCURRENCE OF ANTIMICROBIAL RESISTANCE GENES IN *Listeria monocytogenes* ISOLATED FROM MEAT PRODUCTS: A SYSTEMATIC REVIEW

AUTHORS: REIS, J.O.; VIEIRA, B.S.; CUNHA NETO, A.; CARVALHO, R.C.T.; CAVALCANTE, C. B.; FIGUEIREDO, E. E. S.

INSTITUTION: FEDERAL UNIVERSITY OF MATO GROSSO, MT (AV. FERNANDO CORRÊA DA COSTA, 2367, CEP 78060-900 - GOOD HOPE, CUIABÁ - MT, BRAZIL)

In Brazil several studies have related the pathogen *Listeria monocytogenes* to meat products, which becomes a concern as Brazil is the second largest producer of beef in the world. The occurrence of antimicrobial resistance in strains isolated from meat products has apparently increased, which negatively impacts the effectiveness of listeriosis treatment in humans. Thus, the objective of this work was to develop a systematic review regarding the occurrence of antimicrobial resistance genes in *L. monocytogenes* isolated from meat products. For that, a search strategy with the keywords: "*Listeria monocytogenes*", "drug resistance", "microbial resistance", "MDR genes", "beta-aminoglycosides", "trimethoprim", and "sulfamethoxazole" was applied in four different databases: Pubmed, Science Direct, Scopus and Scielo. After that, 334 articles were identified. Excluding the duplicates, 299 remained. Evaluating the titles, 133 remained. After screening by abstracts, 89 were submitted to full text reading. In the end, 22 articles met all the inclusion criteria: 1) research papers conducted with *Listeria monocytogenes* isolated from commercial animals and/or animal-based food products, 2) the occurrence of genes of resistance to beta-lactams, aminoglycosides and inhibitors of the folate pathway (trimethoprim and sulfamethoxazole) were investigated, 3) commercial kits were used for DNA extraction. Among the 22 articles, a total of 1796 strains were analyzed, of which less than 1% presented resistance genes for trimethoprim detected through the amplification of the gene: *ermA*, *ermB* and *ermC*. The percentages for resistance genes from the beta-lactam and aminoglycoside groups were also less than 1%, with amplification of the *strA* gene to streptomycin and *tetA* to ampicillin. Despite the low percentage, all strains analyzed were multiresistant (MDR), which may make it difficult to treat listeriosis. From the analyzed papers, 22.77% were carried out in Poland, 18.18% in China and 13.63% in Brazil in 2014. In that same year, according to the Ministry of Health in Brazil, the number of food outbreaks caused by unidentified pathogenic microorganisms was the highest within the interval 2007 to 2016. These findings may contribute to the identification of the actual prevalence of resistance genes, in view of the appearance of MDR strains, which make it difficult to treat listeriosis, as well as being capable of causing serious damage to the food chain and public health.

Keywords: *Listeria monocytogenes*, antimicrobials, resistance genes.

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