Survey of infant formulas consumed in Brazil for macrolide antimicrobial residues

Pereira, M. U.[1]; Ferreira, R. G.[1]; Pereira, B. F. M.[1]; Spisso, B. F.[1]
[1] Instituto Nacional de Controle de Qualidade em Saúde (INCQS),
Fundação Oswaldo Cruz (Fiocruz), Rio de Janeiro - RJ, Brazil
bernardete.spisso@incqs.fiocruz.br

Sessão do trabalho: 4 – Resíduos de agrotóxicos e medicamentos veterinários

Resumo:

Infant formulas are used as a substitute or a food supplement for breast milk. Although being strictly regulated manufactured products chemical residues and contaminants may be present. Animals' milk (mainly cow's milk) is the primary ingredient in the manufacturing of the majority of infant formulas and may be a source of chemical contamination. Veterinary drug residues can be present due to the use of these substances in milk producing animals. Macrolide antimicrobials have already been designated as critically important for both human and animal health and should be prioritized for actions to combat the threat posed by antimicrobial resistance. A liquid chromatography–tandem mass spectrometry (LC–MS/MS) method, based on a modified QuEChERS alkaline extraction, which has been in-house developed and validated, was used for the identification and quantification of macrolide residues in infant formula sold in the states of Rio de Janeiro, Pernambuco, Mato Grosso do Sul and Rio Grande do Sul, Brazil, from 2018-2021. The method, quantitative for erythromycin, spiramycin, oleandomycin, and tylosin, and qualitative for tilmicosin, was applied to 80 samples and the results showed a high incidence of macrolide residues (52.5%). Spiramycin was detected in 51.3% of samples, with a method limit of detection of 0.11 µg L^1 for ready-to-eat infant formulas. In 21.3% of analyzed samples, more than one studied macrolide was found. Since according to Brazilian regulations veterinary drug residues are not allowed in infant formula, all these samples were considered non-compliant.

Palavras-chave: Food Safety. Antibiotics. Veterinary drugs.