

Category Summary (Poster)

Validation of Analytical Methodology for Determination of Imidocarb in Bovine Milk and Tissues by UPLC/MS/MS

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Imidocarb dipropionate is recommended for prophylaxis of tick-borne disease (or tick fever), a disease with high incidence in cattle especially in tropical regions. The drug has effect babesicide and anaplasmicide, against protozoa (Babesiosis and Anaplasmosis), which are inoculated by ticks. European Medicines Agency (EMA) establishes maximum residue limits (MRL) of various drugs used in veterinary medicine. Once applied the product on the animal, a withdrawal time should be respected, period in which drugs residues in different matrices (e.g. muscle, kidney, liver, fat, milk) reaches values below the MRL prescribed by the agency, ensuring the quality of the product for human consumption. In this present study, we developed and validated an analytical method using ultra performance liquid chromatography-tandem mass spectrometric (UPLC/MS/MS) for determination of imidocarb in bovine milk and different bovine tissues. Briefly, samples (milk or tissues) were homogenized with acetic acid 1% for protein precipitation. The solution was centrifuged (15000g) at 20°C for 5 min, and supernatant was filtered through a 0.22µm filter and analyzed. UPLC/MS/MS analysis was carried out on a C-18 column, 2.1 x 100 mm, 1.7 µm at 25°C. The mobile phase consisted of a mixture of acetonitrile (90%) acidified with 0.1% of formic acid and formic acid (10%), and the flow rate was set at 0.30 mL/min. The total time of the analytical run was 5 minutes. Mass spectral acquisitions were performed by positive electrospray ionization (ESI) in the multiple reaction-monitoring (MRM) modes. Transitions monitored were: 349.35 > 162.2 m/z and 349.35 > 188.2 m/z. Parameters obtained fulfilled all the requirements of the validation assays such as selectivity, linearity, precision and accuracy, resulting in a method to monitor residues of imidocarb in bovine milk and tissues. The quantification limit allowed controlling the residues of this drug studied according to the MRL recommended by the EMA. In conclusion, a fast chromatography run and high sensitivity and selectivity of the UPLC/MS/MS technique resulted in a very efficient and reliable analytical methodology.

References

[1] European Medicines Agency: www.emea.europa.eu

[2] Crescenzo, G et al.; *Italian Journal of Food Science*. **2002**, 14, 33 - 38.