Development and validation of a liquid chromatography method with electrospray ionization tandem mass spectrometry for the determination of brotizolam residues in beef and commercial whole milk

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Abstract

In this work, a liquid chromatography-tandem mass spectrometric detection technique was developed and validated for the determination of brotizolam residues in beef muscle and commercial whole milk. This procedure involves the extraction of the analyte from the samples via liquid-solid extraction, and caffeine was used as an internal standard. The analyte was successfully separated on an XTerra-C(18) column, with a mobile phase composed of 0.01% formic acid in acetonitrile and 1 mm ammonium formate-0.01% formic acid in water. The one-step extraction method evidenced good selectivity, precision (RSD = 9.87-26.47%), and the recovery of the extractable analyte was 92.61-115.98% in the matrices. The limits of quantification ranged between 0.4 and 0.5 μg/kg. The developed method is simple since it requires no additional cleanup procedures.

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