

UHPLC MS/MS Determination of Ibuprofen Lung, Liver and Serum in Winstars Rats [†]

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Abstract: Inhaled and oral Ibuprofen (IBU) has demonstrated anti-inflammatory activity in experimental animals. The IBU distribution in the lung, liver, and serum would depend on the form of administration of IBU: oral (OA) or inhalation administration (IA). To assess that hypothesis, twelve adult male Wistar rats were randomly divided into 4 treatment groups: Oral Control, IBU 10 mg by OA, Inhalation Control, 2 ml of inhaled IBU 5 mg/ml. The protocol was approved by the Animal Care Committee of the Ferreyra Institute. The IBU quantification was carried out after selective extraction from the biological samples and subsequent ultraperformance liquid chromatography coupled with electrospray triple quadrupole mass spectrometry (UHPLC ESI MS/MS) determination. The precision, accuracy, stability, detection and quantification limits, and matrix effect have been assessed. The developed technique resulted in selective, linear in the range of concentrations evaluated and accurate for quantified IBU in the biological matrices. The results showed that the IBU distribution is strongly related to the route of administration used. OA resulted in higher levels in the liver and serum than IA. On the other hand, a higher level was obtained in the lung samples when the IA was used.

Keywords: Ibuprofen; inhalation and oral administration, HPLC MS-MS.

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Conflicts of Interest

The authors declare no conflict of interest.