DEVELOPMENT OF A METHOD FOR DETERMINATION THE RESIDUES OF KETOPROFEN IN SERUM OF ANIMAL BLOOD

O. I. Fediakova, N. V. Bironf, M. R. Kurylo

State Scientific-Research Control Institute of Veterinary Medicinal Products and Feed Additives
11, Donetska street, Lviv, 79019, Ukraine.

Ketoprofen (2-(3-benzoylphenyl)-propionic acid) is a potent non-steroidal anti-inflammatory drug (NSAID) used for the treatment of a wide range of painful and inflammatory illness. Like the most NSAIDs, ketoprofen is advantageous because it lacks addictive potential and does not result in sedation or respiratory depression. Ketoprofen is a white or almost white crystalline powder having empirical formula $C_{16}H_{14}O_3$ with molecular weight of 254.3 and melting point 94˚ to 97˚C. It has pKa of 5.94. It is practically insoluble in water, freely soluble in alcohol, acetone, and dichlormethane.

Several types of analytical procedures have been proposed for the analysis of ketoprofen in pharmaceutical formulations. The procedures include capillary zone electrophoresis, UV-spectrophotometry, high-performance liquid chromatography, flow injection technique with hemiluminiscence, flow injection with UV-detection, polarography, micellar elecrokinetic chromatography, electrochemical methods.

European Pharmacopoeia recommended acid-base titration for analysis of ketoprofen in substance, UV-spectrophotometry for its determination in capsules as well as liquid chromatography for assay in gel. The aim of this paper is to develop a specific, precise and accurate chromatographic method that could be applied in quality and quantity control for the determination of ketoprofen.

The article describes the main stages of development and application of quantitative determination of ketoprofen in blood serum of animals by the method of high-performance liquid chromatography. The developed method allows to determine the concentration of ketoprofen by using a ultraviolet detector, a wavelength of 260 nm. The mobile phases contains sodium phosphate buffer and acetonitrile in the ratio 55:45, and a column temperature of 30 ºC. The main stages of samples preparation for research was observed: extraction with ethyl acetate, purification by solid phase extraction, re-dissolution and, in fact, chromatography. At a flow of 2 ml/min. the

retention time for ketoprofen is 3,6 minutes, and the analysis time is 10 minutes. The method is linear in the range of 0.1-8 μg / kg.

Keywords: KETOPROFEN, METHODOLOGY DEVELOPMENT, HPLC-UV, BLOOD SERUM.