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Analytical comparison of the Ibuprofen tablets supplied from two different companies

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Abstract

Background. High performance liquid chromatography (HPLC) is one of the most important methods for the analyses of the medicines. The sensitivity of the method is allowing to detect even picomoles amounts of the existing compounds. The aim of the work was the investigation of the tablets of Ibuprofen, one of the most widely used medicine for the treatment of pain, inflammation etc. Both

products of the same medicine produced by two different companies were bought from Pharmacies of Armenia.

Methods. For determination of the maximums of absorption it was applied the spectrophotometric scanning by the utility of the Carry 60 (Agilent, Germany) spectrophotometer. Reverse-Phase HPLC was applied for the detection of Ibuprofen as well as the impurities and excipients. It was used Shimadzu LC system, which consists of the Controller CBM -20A, Pump A-LC-20AD, Autosampler –SIL-20 A, Oven, CTO-20A, PDA-SPD-M20A. For the reverse type of chromatography it was applied Column Waters Symmetry 300TM C18, with the pore size 5 μ m, the length and the diameter of the column was equal to 4.6x250 mm. The number of the excipients was taken into the consideration from the leaf-list and after comparison with the European Pharmacopea, conclusions were made. There wasn't performed calculation regarding the absolute amount of medicines in tablets. The all analyses were comparative.

The conditions of the experiments were the following: flow rate- 1 ml/min, entire time of the experiment was equal to 20 minutes, isocratic flow supply for organic solution was equal to 80% and for inorganic solutions was equal to 20%, temperature for the analyses was increased up to 40°C and the total injectable volume of the sample was 10 μ l.

Results and conclusions. Ibuprofen has two maximums at 214 as well as 260 nm. Both companies- Company N1 as well as Company N2 provided the tablets with allowed by European Pharmacopeia % of the impurities. The number of impurities as well as excipients was larger in the tablets from Company N2 in comparison with Company N1. The amount of the Ibuprofen in comparison with accompanying products in Company N2 tablets was higher in comparison with Company N1 pills.

Key words: HPLC, Ibuprofen, comparison, analyses