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## Development and validation HPLC methods for determination of some antibiotics in support of their adsorption study on natural zeolite

Residual antibiotics pollution has become one of the most serious environmental and human health problems today. Therefore, it has been a great exigency to develop some efficient and cost-effective treatment methods and technologies for antibiotics removal from industrial and household contaminated water. There is the most used technique - adsorption for treatment of wastewaters. Due to high cation-exchange ability as well as to the molecular sieve properties, natural zeolites have been widely used as adsorbents for removal of the frequently used some antibiotics from wastewaters and in purification process. The present research concerns the development and validation for quantitative determination HPLC methods of three antibiotics, from fluoroquinolones drug class – moxifloxacin and norfloxacin and from cephalosporin drug – ceftriaxone in support of adsorption properties study on the selected natural zeolite and modified forms in aqueous solutions. The HPLC methods were developed and validated with respect to system suitability test, specificity, linearity-range, accuracy, precision, limit of detection (LOD) and quantitation (LOQ) according to ICH guideline. The stability of solutions and filter compatibility were checked as well. The calibration curves of developed HPLC methods are linear over a concentration range from 0.1 µg/mL (LOQ) to 200 µg/mL for ceftriaxone, from 0.05 µg/mL (LOQ) to 100 µg/mL for moxifloxacin and norfloxacin; the average recovery is not less than 98.0% for each analytes.

### Biography

Marine Zautashvili has completed her PhD from Petre Melikishvili Institute of Physical and Organic Chemistry, in 2012. She is a Senior Scientific Researcher and the Member of the Academic Council of Ivane Javakishvili Tbilisi State University. She has published more than 60 scientific papers in peer-reviewed journals.

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