

Urolithiasis is wide - spread disease, which can lead to serious complications as far as acute renal failure. It is important to analyze the composition of calculus for accurate diagnosis and effective prevention. I deal with analysis of urinary stones by infrared spectroscopy and polarization microscopy in this work. In the first part of the work I intent on the methodical aspects of assesment. The set of ten samples, which included rife components of calculi, was evaluated by two software programs – Kidney Stone Analysis and Omnic. Programme Kidney Stone Analysis gives just one end - result. Programme Omnic indicates ten possible results of the constitution of the sample, which best matches with spectra from libraries. The evaluative person has a possibility to compare these results and decide for the end - result, according to how quantitative data in the evaluation repeat.

The result of component's content around 10 % can not be regard as totally reliable. The polarization microscope enables to check and specify the results of the analysis. To use a combination of both methods claimed to be very profitable. In the second part of the work, patients' urinary stones were analyzed, in the way how samples are evaluated in laboratory running. Patient group was formed by 20 persons (17 men and 3 women) in the age of 15 – 76 years. The elderly persons predominated. Most principal diagnosis was kidney stone (45 %), next patients had urether stone diagnosis or the other unrecognized ventral pain. One patient (man in the age of 21) had diagnosis - disorder of parathyreoidea. The constitution of calculus (presence of phosphate component) corresponded to the diagnosis. Whewellite and uric acid occur most often in patients with one - component calculi. Typical combination for double - barrelled stones was whewellite together with weddellite. In their relative substitution predominated whewellite.