correspond to the sanitary regulations, and in some cases they challenge the non-compliance of the sanitary norms with the physico-chemical and microbiological indices.
Conclusions. The sources that provide the drinking water in the southern districts of the Republic of Moldova have to be monitored by taking water samples and laboratory analysis. If the laboratory analyzes indicate water that does not meet the drinking conditions, its use for human consumption will be prohibited, especially for children, as well water treatment measures should search for other sources of guaranteed drinking water that meet the sanitary norms. Water is a precious and common good to mankind, because of its importance for the health of the population and the development of society protective measures are required.
Key words: Drinking water, quality, south, population health.

411. REDOX VS NEUTRALIZATION TITRATIONS FOR DETERMINATION OF ASCORBIC ACID'S CONCENTRATION IN FOOD SUPPLEMENTS

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Introduction. Ascorbic acid is required for the optimal activity of several important biosynthetic enzymes and it is therefore essential for various metabolic pathways in the body. The recommended dosage for men is 90 mg per day and for women 75 mg per day. During pregnancy, it takes about 85 mg per day while breastfeeding 120 mg per day. Tobacco destroys vitamin C in the body, because of which smokers should consume up to 200 mg per day. However, there are several categories of the population, which cannot provide optimal amounts of all necessary nutrients through the food. In these situations, the use of supplements can help. European regulation provides that any supplement of ascorbic acid may be one of five compounds: L-Ascorbic Acid, Sodium-L-Ascorbate, Potassium-L-Ascorbate, Calcium-L-Ascorbate, and L-Ascorbyl-6-Palmitate. According to the legislation, in the Republic of Moldova, the state quality control of food supplements is not mandatory, being based on the quality control of producer. In this context, it becomes appropriate to prove the content of ascorbic acid in food supplements.
Aim of the study. Evaluation of redox and neutralization methods of quantitative determination of ascorbic acid in food supplements.
Materials and methods. Electronic databases: Medline, Cochrane, Embase and Springer were accessed using "vitamin C analysis", "ascorbic acid assay" and "vitamin C quantitative determination". Also, the search was conducted by using printed pharmaceutical and chemical journals. 108 bibliographic sources were eligible for our study.
Results. For the determination of ascorbic acid, a wide range of techniques and methods is available, each with its own advantages and disadvantages. In most of the articles (65%), alkalimetric method was used in order to determine the content of ascorbic acid in food supplements. It is an acidic compound due to the facile ionization of hydroxyl group on carbon 3 (pKa = 4.17) while the hydroxyl group on carbon 2 is much more resistant to ionization (pKa = 11.79). Also, most frequently (35%) the iodometric method was applied. As the iodine is added during the titration, the ascorbic acid is oxidised to dehydroascorbic acid, while the iodine is reduced to iodide ions.
Conclusions. Both alkalimetric and iodometric methods were applied successfully for the determination of ascorbic acid in food supplements. The iodometry was more accurate than

alkalimetry in determination of ascorbic acid from samples that contain additional acids, which do not interfere with the oxidation of ascorbic acid by iodine.
Key words: Ascorbic acid, alkalimetry, iodometry, food supplements.

412. APPLICATION OF DISSOLUTION TEST IN RESEARCH OF THE IN VITRO BIOAVAILABILITY OF DRUGS

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Introduction. In the pharmaceutical industry, dissolution may be defined as the amount of drug substance that goes into solution per unit time under standardized conditions of liquid/solid interface, temperature and solvent composition. Dissolution is also the only test that measures in vitro drug release as a function of time. Dissolution of drug in a solid dosage form (e.g. tablet or capsule) is composed of at least two consecutive steps as well; liberation of solute/drug from the formulation matrix followed by dissolution of the drug in the liquid media. Thus, in order to achieve dissolution of drug from a dosage form, the cohesive properties of the formulated drug and intrinsic physicochemical properties of the drug molecule play a key role. Prediction of in vivo behavior often requires the use of in vitro dissolution methods reflecting the in vivo gastrointestinal conditions.
Aim of the study. Evaluation of the impact of the dissolution test and of the determinants in the research of the bioavailability of drugs.
Materials and methods. 83 abstracts and articles from systematic research in the Cochrane Electronic Library and MEDLINE databases.
Results. Following the analysis of the evaluated bibliographic sources, the in vitro release from the analyzed formulations was found to be dependent mainly of the composition of the dissolution media. Selection of the most appropriate medium for routine testing is based on stability of the analyte in the test medium. For some water-soluble drugs, pH of the dissolution medium has less effect on dissolution, but surfactants added to the dissolution medium will increase drug solubility significantly. Even though the media simulate most relevant characteristics, such as concentration of solubilizing substances, buffer capacity, pH and the ability of drugs to dissolve, they are not a one-to-one copy of gastric or duodenal juice. The universal analytical separation method with acceptable selectivity and sensitivity in most analyzed sources is high performance liquid chromatography (HPLC), with transfer to the more efficient ultra-performance liquid chromatography (e.g. UPLC (Waters)). HPLC is often the method of choice even though it is less time efficient than UV/VIS due to the fact that during early phase development multiple formulations and strengths are screened and potential interferences from the formulation matrix or medium or even degradation of the active can be separated easily by HPLC.
Conclusions. The dissolution test is a valuable *in vitro* technique for predicting the in vivo behavior of pharmaceutical forms with peroral administration. All the factors of influence on the transfer process are in strict dependence on the physicochemical properties of the active principles and of the excipients.
Key words: Dissolution test, *in vitro* bioavailability.