

maximizing the therapeutic effect. For a uniform distribution of dispersion sizes it is useful to use the calibration technique. An important reason is that nano-size offers a number of advantages such as: significant increase in total particle size, increased solubility, bioavailability and drug dose reduction.

Conclusions. The progress of nanotechnologies and the development of different types of nanoparticles offer new opportunities and challenges for medicine and pharmacy.

So the traditional methods of existing analysis that are applied in this area are not enough when it comes to nanomedicines. However, fortunately, technological progress has brought new, more sophisticated analysis technologies that open up new opportunities in nanomedicine research.

Key words: nano-drugs, analysis, nanotechnology

358. LIPOSOME FORMULATIONS' METHODS OF ANALYSIS

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Introduction. The pharmaceutical nanotechnologies represent one of the most progressive and promising branches of pharmaceutical technology. They permit the modification and directing of the properties of active substances without the modification of chemical structure. For the new nano-drug formulations, exists the need of implementation of new methods of analysis that will take into account not only the chemical structure of the substance, but also the macro-molecular formulation and its parameters.

Aim of the study. The aim of the study was the literature review of the existing methods for the analysis of liposome formulation and their application to a specific formulation with antibiotic substance.

Materials and methods. A literature review of existing methods of analysis of liposomes was performed. The methods of analysis were classified in classes, depending of the studied formulation parameter. If possible, the method was applied for the study of the parameters of the formulated liposomes with antibacterial substances.

Results. In order to establish the existing methods of analysis of for liposomes, a study review of 94 literature references was performed (basically from PubMed and Medline library). The methods of analysis were classified in 3 classes: optical, chemical and physico-chemical methods. Using some of these methods, that were applicable to our study object, the parameters of a prepared liposomic formulation were established. The methods were tested for linearity, repeatability and reproducibility.

Conclusions. The results have shown that a part of classical methods for analysis of a liposomic formulation sometimes are not enough to describe the studied preparation and to predict its efficiency. Also, different liposomic formulations have demonstrated different results at the application of the same method of analysis. This fact demonstrates the need of elaboration of specific technics of analysis for each individual liposomic formulation.

Key words: liposome, methods of analysis

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359. SPECIES SOLIDAGO CANADENSIS L. AS INVASIVE PLANT

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Introduction. Invasive plant species represent major threats to the conservation of ecosystems worldwide and have major impacts on economics. Due to their rapid rate of spread in plant communities and their ability to replace native vegetation, invasive species have been reported to directly alter landscape structure, biodiversity functioning and composition. Nowadays, with increasing globalization, plants species are currently being introduced to novel ecosystems at an unprecedented rate.

Aim of the study. The analysis of sp. *Solidago canadensis* L. as invasive plant in Europe and its threats to the local native flora of the Republic of Moldova.

Materials and methods. The bibliographic complex study of the issue including a database of scientific references.

Results. Goldenrod species native to North America are among the exceptionally successful worldwide invaders. Focus of this study is sp. *S. canadensis* L. (Canada goldenrod), which was introduced to Europe from North America as a garden ornamental in the 17th century, today being widely distributed across the whole European continent. Canada goldenrod invades a wide range of habitats: semidry grasslands, lowlands, abandoned fields, roadsides and pastures. In the introduced areas, sp. *S. canadensis* L. promotes monocultures due to its fast growth rate, prolific reproduction as well as strong allelopathic effects on native species. In the Republic of Moldova, sp. *S. canadensis* L. is included in the uncultivated synanthropic flora, being specific for degraded ecosystems and rural areas, particularly in ruderal and human-created habitats, also being cultivated as an ornamental plant.

Conclusions. Canada goldenrod is widely recognized as one of the most widespread invasive species in Europe, nevertheless there is a little knowledge on its distribution and threat invasion for the local flora of the Republic of Moldova. In these circumstances, understanding the distribution of invasive sp. *S. canadensis* L. is important for nature bioconservation and management.

Key words.: *Solidago canadensis* L., invasive plants, biodiversity

360. THE ROLE OF MINERALS IN THE METABOLISM OF SPORTSMEN

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Introduction. Mineral salts, similar to proteins, carbohydrates, fats and vitamins are indispensable to the human body. The human body can not "manufacture" mineral salts, they are received daily through diet. The food as a source of minerals is very important for body health.

Materials and methods. The profile literature and database was evaluated.

Results. Minerals have the ability to maintain cell membrane stability, osmotic balance, and enzyme catalysts. The body loses minerals through urine, feces, sweating daily. In the sportsmen, during physical effort, much of the minerals are eliminated more by sweating. That is why they require a daily intake of minerals much higher than sedentary and passive people. Ca is important for nerve and muscle cells, stimulates the release of acetylcholine, allows muscle contraction (in the absence total decontraction is impossible, resulting in uncontrollable muscle spasms and cramps). Ca activates vital enzymes and increases the permeability of cell membranes. For optimal Ca assimilation, Mg and P are required in a well-defined proportion. Mg activates enzymes, plays a role in the conversion of ATP into muscle. Contrary to Ca, Mg stops decreasing of skeletal muscle excitability limit. K is found in intracellular fluids and maintains osmotic balance, engages in muscle and liver glycogen formation. K acts the transmission of nerve impulses and the onset of muscle contraction. Zn participates in basic