

### 356. NANOCARRIERS IN COSMETIC TECHNOLOGY

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**Introduction.** It is always known that a beautiful skin is a cared skin. For this reason, the cosmetic products used for effective skin care have enjoyed a constant popularity. Nanotechnologies are often used for the development of new-generation cosmetics. A nanocarrier commonly found in modern cosmetics technology is liposome. It gives to the product some additional benefits that are not found in common products. Hyaluronic acid is a leader substance in plastic surgery and anti-aging products. It has many advantages for the skin, including the guarantee the strength, elasticity and tonus of the skin; protection and hydration of skin tissues etc. We suppose that a product that contains liposomal hyaluronic acid would be more effective than a traditional product.

**Aim of the study.** The study of applicability of liposomes in the formulation of cosmetics. Internal market research and study of population accessibility to cosmetic products containing liposomes. Elaboration of a cream containing liposomal hyaluronic acid.

**Materials and methods.** The market study of cosmetic products containing liposomes was carried out. It was elaborated the formula of the cream containing liposomal hyaluronic acid.

**Results.** The literature demonstrates several advantages of cosmetic products containing liposomes: a high degree of penetration, a more uniform distribution of the biologically active principles in the skin tissues and a high capacity retention of the active principle in biological tissue. Market research has elucidated a low presence of cosmetic products containing liposomes on market in the Republic of Moldova. This trend is found both in case of imported products (under 1%) as well as for those native (zero %). For the formulation of the cream containing liposomal hyaluronic acid has been taken into consideration role and nature of excipients as well as the method of incorporation of the active substance in nano-systems.

**Conclusions.** It is possible to develop a cream containing liposomal hyaluronic acid and placing it in market of the Republic of Moldova, such a product will be a welcomed novelty and also in line with the new trends in the field of cosmetology.

**Key words:** liposomes, moisturizer, hyaluronic acid

### 357. ANALYSIS OF NANO DRUGS

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**Introduction.** The properties of drug substances incorporated into nano-systems are often due not only to the properties of the substance but also to the nano-systems of which they are part. For this reason, the assessment of the quality of a nano drug requires a more complex check, which involves checking the structure of the nanoparticle. In particular, a rigorous control of their size is indispensable to ensure the improvement of the pharmacokinetic and pharmacodynamic behavior of the active substances. To meet these requirements, nano-drug analysis methods are supposed to be applied.

**Aim of the study.** Study of nano-drug analysis methods.

**Materials and methods.** The review of scientific literature on nanomedicine analysis methods has been performed.

**Results.** Information from literature demonstrates a number of advantages of using nano-drugs. The transport of the drug is directly to the biological target, bypassing the adverse effects and

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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