

TECHNOLOGICAL AND MEDICAL ASPECTS OF PRODUCTION OF DRUGS IN THE FORM OF RODS

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One of the important directions in the development of Biopharmaceutics is the choice of optimal type and composition of the dosage form (DF), which ensures high safety and therapeutic efficacy of the finished product (FP).

Unjustly forgotten and almost completely absent in the pharmaceutical market and in the arsenal of modern medicals are drugs in the form of rods, the use of which may be effective in the treatment of diseases of ear and number of urological diseases.

Topical application of drugs in the form of rods gives opportunity to effect directly on the affected target tissue avoiding, in most cases, fluctuations in the concentration of active substances in plasma, which is typical during the second administration of drugs that are excreted quickly, and to avoid primary passing through the liver that occurs after absorption in the gastrointestinal tract.

SPU, 1 ed., Ext. 2 contains general pharmacopoeial article "Rods", which provides a definition of the DF and the requirements of their quality control. The main reasons that hinder the use of drugs in the form of rods are technological, physical and chemical problems associated with their production and standardization, and problems of informational nature related to the coverage of the main aspects of drug therapy of various diseases using these drugs.

The purpose of this work is to highlight the important technological aspects of rods, and the development of methodological approaches of improving of technology and quality of the DF according to modern biomedical requirements.

Suppository are the closest to rods DF and they are the most studied in all aspects (structure, technology, test). So when we described this material the basic approaches to production and standardization of this group of drugs with emphasis on features that are unique for drugs in the form of rods were taken as the basis.

According to the Pharmacopoeia rods usually have the form of a cylinder with a pointed end and a diameter of 10 mm. Their length varies, but may be no more than 10 cm and a weight of 0.5 to 2.0 g.

The composition of rods, other than active ingredients, includes the base, which in most cases provides the necessary physical, chemical, technological and consumer properties of the DF. For the manufacture of rods used almost all bases used in technology of suppositories except gelatin-glycerol and soap-glycerine basis due to insufficient mechanical stability. According to the nature of the distribution of active ingredients in basis, rods can be in a variety of dispersed systems. Heterogeneous systems are formed in all cases where the active ingredients are distributed on the basis of the type of suspension or emulsion, homogeneous - when drugs are dissolved in the base.

By analogy with rods suppositories can be made by 3 methods: hand-formation, moulding and pressing.

The use of a method depends on the properties of the base, its ability to form a plastic mass, velocity of freezing and forming of structure. To obtain rods by hand-formation method, which is used mainly in the manufacture of extemporaneous, as the basis for cocoa butter is used only. Pressing and pouring into molds are the most versatile because they can be used in drugstores and pharmaceutical factories using almost all types of bases. Their physicochemical and technological properties can be adjusted by means of different groups of excipients (lubrication, increasing the hardness and melting point components, antioxidants, preservatives, etc.).

The determining factors that hinder the production of this group of drugs is the lack of social order, which can be formed by clinicians-consumers of this group of drugs, and lack of Pharmaceutical Manufacturers necessary equipment: special press tool for pressing rods and special shapes for their molding.

Thus, the solution of these problems together with urologists we see in the ground and create special forms for the production of rods and their molding technology development using different bases of different nature to treat the most common urological diseases.