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NANOSTRUCTURED MEDICAL FORMS ALCHIDINE ON THE BASIS OF BENTONITE CLAY

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Recently creation of polymeric medicinal forms of the prolonged action is carried out with attraction of nanotechnology. Researches of possibilities of obtaining nanomaterials on the basis of self-structured mineral natural polymers, such as bentonite clay are especially actual. Ability of bentonite clay to self-structurization (gel formation) is especially important for obtaining of soft medicinal forms of multicomponent biologically active complexes as, owing to various sorbtion ability does not manage to enter all components of such preparations equally into medicine structure by sorbtion way. And it is fraught with decrease in therapeutic efficiency of medicinal substance. Along with it there is a considerable quantity of medicinal substances possessing besides effective medical action, also possess toxicity and short duration of action. One of such preparations is biologically active complex - alchidine (an extract from the camel prickle) for which introduction in a polymeric basis and creations, thus, the composite medicinal form possessing prolongation effect is perspective.

In this connection, we had been investigated laws of linkage of biologically active complex - alchidine with bentonite clay of the Manrak deposit. The choice of bentonite clay of the given deposit is connected by that pink bentonite differs the high maintenance of montmorillonite (not less than 70 %) and possesses a number of valuable properties: high swelling ability, indifference to other raw materials, untoxicity, sorbtion ability, availability.

Physical and chemical characteristics of clay and law of immobilization of alchidine on it are established. For obtaining of composite materials and management of their properties important knowledge of laws of interaction of components among themselves, establishments of optimum conditions of their preparation. Also it is the basic stage of technological process of creation of polymeric medicinal forms. In this connection, by the method of electrophoresis, equilibrium swelling and sedimentation interaction of bentonite clay with alchidine was investigated and sorbtion-desorbtion characteristics of these composites are considered.

Spent by a complex of physico - and colloid-chemical methods of research of interaction of alchidine with bentonite clay have shown that interaction proceeds with formation of complexes at the expense of electrostatic and hydrogen forces. Complexing is accompanied by appreciable integration of particles of clay, however, with uniformity and stability preservation. Structure of system depends on concentration of entered medicinal substance, varying which it is possible to achieve a necessary consistence of the medicinal form. Analyzing the data on kinetic of release of medicinal substances from clay gels it is possible to conclude that durability of complexes is defined by the nature of bonds and, especially, the size of a molecule of the active beginning: small molecules are sorbed in internal steams of a crystal lattice, owing to desorbtion is not considerable. In that and other case high enough degree of prolongation of medicinal substance is provided. Results of research testify to perspectivity of use bentonite clay as the carrier of medicinal substances.

M.Zh. Kerimkulova, K.B. Mussabekov, K.I. Omarova
The modification of coal Surface by surface-active substances 53
A.O. Adilbekova
Interaction of polyethylenimine with oleic acid at the interface of two liquid phases 54
G.K. Alimbekova, S.B. Aidarova, A.A. Sharipova, A.K. Sarlybaeva, A.A. Babayev
Surface tension of aqueous solutions of nanosized latex hydrodispersion and tetraethylene tetra amine 55
S. Turganbay, K.B. Mussabekov, K.I. Omarova
Development of methods for fungicides on gidrofilizirovannoy sulphur 56
Г.М. Мадыбекова, С.Б. Айдарова, Б.Ж. Муталиева, А.К. Асильбекова
Коллоидно-химические принципы применения композиций производных полиакрилонитрила 57
К.Б. Мусабеков, Г. Ережепова, Ж.Ж. Кусайнова, У.С. Байменова
Флокуляция гидросуспензии каолина катионным и анионным полиакриламидами 58
N.K. Tusupbaev
Colloid-chemical and flotational features of nanosized sfalerit modificators 59
S. Aidarova, A. Sharipova, A. Babayev and G. Alimbekova
Anti-corrosive coating of surfaces by polyelectrolyte surfactant mixtures 61
Ж.А. Алыбаев, Е.С. Абдрахманов, Ғ.Д. Бозымбаев, С.Ж. Кенбеилова, Г.Б. Байдильдаева, Н.К.Құлымбаев
Алюминий электролизері үшін қажетті анод массасын алу технологиясының талаптарына сай көмір материалдарын дайындау 62
НАНОМАТЕРИАЛЫ 64
S. Limage, M. Schmitt, C. Dominici, M. Antoni, J. Krägel, R. Miller , E. Santini, F. Ravera, L. Liggieri
Cryo-SEM investigation of emulsions stabilised by nanometric silica and CTAB 65
D.N. Akbayeva, A.A. Karimova, F.Kh. Faizova, R.R. Abdreimova, G.S. Polimbetova, A.K. Borangazieva
New nanostructural catalysts in the synthesis of organophosphorus compounds from phosphides and elemental phosphorus 66
С.К. Намазбаев, Б.Л. Левинтов, А.В. Бобир, Т.А. Коковешникова
Получение новых нанокристаллических материалов из аморфных железофосфористых природолегированных сплавов 67
Zh.N. Kuanyshbekova, D.T. Ybyraiymkul, D.U. Smagulov, A.A. Zakhidov
Tandem Dye Sensitized Solar Cell with nanostructured carbon interlayer 68
A.A. Mentbayeva, A.K. Ospanova, S.A. Sukhishvili
Growth of multilayers based on chitosan with synthetic and natural polyanions 69
L.R. Jurkabayeva
Nanostructures of polymer particles 70
A.D. Assilbekova, G.M. Madybekova, B.Zh. Mutaliyeva
Vegetative raw-materials' macromoleculars disconnection 71
B.M. Kudaibergenova, Sh.N. Zhumagalieva, M.K. Beisebekov, Zh.A. Abilov
Nanocomposite materials on the basis of gelatin-bentonite clay 72
G.Zh. Kairalapova, R.S. Iminova, M.M. Beisebekov, Sh.N. Zhumagalieva, M.K. Beisebekov, Zh. A. Abilov
Nanostructured medical forms alchidine on the basis of bentonite clay 73
U.K. Sarsembin, R.A.Kazova
The solidphases interaction in the multicomponents systems 74
Zh.A. Zhaksibekova
NMR-^{1}H spectra of nanostructures of polymers 75