

Synthesis and properties of fibers prepared from lactic acid-glycolic acid copolymer

Malafeev K., Moskalyuk O., Yudin V., Sedush N., Chvalun S., Elokhovskii V., Popova E., Ivan'kova E.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2017, Pleiades Publishing, Ltd. A method for preparing laboratory samples of fibers from glycolide-co-D,L-lactide to produce bioresorbing suture filaments with a controlled complex of properties is developed. The morphology of fibers obtained through melt spinning is studied. The peculiarities of the mechanical properties of fibers are investigated.

<http://dx.doi.org/10.1134/S0965545X17010096>

References

- [1] S. Ebnasajjad, Handbook of Biopolymers and Biodegradable Plastics—Properties, Processing and Applications, (William Andrew, New York, 2013).
- [2] R. Jain, Biomaterials 21 (23), 2475 (2000).
- [3] J. Kreuter, Adv. Drug Delivery Rev. 64, 213 (2012).
- [4] R. Dinarvand, N. Sepehri, S. Manoochehri, H. Rouhani, and F. Atyabi, Int. J. Nanomed. 6, 877 (2011).
- [5] A. M. Raya-Rivera, D. Esquiliano, R. Fierro-Pastrana, E. López-Bayghen, P. Valencia, R. Ordorica-Flores, S. Soker, J. J. Yoo, and A. Atala, Lancet 384 (9940), 329 (2014).
- [6] D. N. Bontsevich, Probl. Zdorov'ya Ekol., No. 3, 46 (2005).
- [7] J. B. Herrmann, R. J. Kelly, and G. A. Higgins, Arch. Surg. (Chicago, IL, U. S.) 100 (4), 486 (1970).
- [8] Biocompatible Materials, Ed. by V. I. Sevast'yanova (Med. informatsionnoe agentstvo, Moscow, 2011) [in Russian].
- [9] B. G. Belenkaya, V. I. Sakharova, E. A. Sinevich, S. I. Belousov, A. H. Kuptsov, and S. N. Chvalun, Macromol. Symp. 144 (1), 187 (1999).
- [10] A. A. Kyriacos, G. G. Niederauer, and M. C. Agrawal, Biomaterials 17 (2), 93 (1996).
- [11] D. W. Grijpma and A. J. Pennings, Macromol. Chem. Phys. 195 (5), 1633 (1994).
- [12] D. Grijpma, A. Nijenhuis, and A. Pennings, Polymer (Guildf) 31 (11), 2201 (1990).
- [13] M. Zilberman, Acta Biomater., No. 1, 615 (2005).
- [14] A. Södergård and M. Stolt, Prog. Polym. Sci. 27 (6), 1123 (2002).
- [15] X. Yuan and A. F. T. Mak, J. Appl. Polym. Sci. 81, 251 (2001).
- [16] A. Cicero John and R. Dorgan John, J. Polym. Environ. 9 (1), 1 (2001).
- [17] L. Fambri and A. Pegoretti, Polymer 38 (1), 79 (1997).