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Hyaluronic Acid as Object of Analysis and Accessory Material for X-Ray and Laser Science: a Review

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Abstract. Modern medicine greatly needs high-effective and safe medications and diagnostic agents. Encapsulation of pharmaceutical agents having low water solubility and lipophilicity into biopolymer matrixes allows to increase the bioavailability of such systems. Hyaluronic acid is one of the most suitable polymer for this purpose. However, in spite of the large amount of drug delivery systems based on it, the structure of such systems is unknown, which hinder the development of high effective therapeutic medication and, as a result, the transition toward personalized medicine. X-ray, laser and synchrotron techniques could help us to understand the interaction between the drug and polymer matrix, that allow to further extend for another biological molecules. This review aims to discuss current status of the previous investigations of materials based on hyaluronic acid via X-ray, laser and synchrotron methods of analysis. Moreover, key information related to hyaluronic acid is provided.

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