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Zno doped nanosized composite material based on hydroxyapatite and sodium alginate matrix(Book Chapter)

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The presented work shows new results of a nanostructured composite material investigation. The fabricated and studied material was in the form of beads based on hydroxyapatite (HA), sodium alginate (Alg) and ZnO particles. The HA was produced under the influence of microwave radiation. The beads of HA–ZnO–Alg were fabricated by dropping slurry into the calcium chloride solution. The main purpose of the research was to study the physical and chemical properties of HA–ZnO–Alg composite and approve its biocompatibility in vitro and in vivo. The morphology and elemental composition investigations were conducted by transmission electron microscopy with diffraction (TEM) and scanning electron microscopy with energy-dispersive analysis (SEM with EDX) methods. It was shown that synthesized HA consists of crystallites with a size of 40 nm. The ZnO inclusion appeared in the form of nanosized crystallites 25 nm in size. The average Ca/P ratio was 2.15, which is close to stoichiometric one. © Springer Nature Singapore Pte Ltd. 2019.