Localized injectable drugs delivery hydroxyapatite microspheres for osteoporosis therapy

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This study describes the preparation of hydroxyapatite microspheres for local drugs delivery. The formation of the hydroxyapatite microspheres were initiated by enzymatic decomposition of urea and accomplished by emulsification process (water-in-oil). The microspheres obtained were sintered at 500℃. Scanning electron microscope (SEM) indicated that the microspheres have various porous with random size, which maximizes the surface area. Cytotoxicity was not observed after sintering. Osteoporosis drugs, alendronate and BMP-2, were loaded into HAp microspheres and the releases of both molecules showed sustained releasing profiles. Finally, animal trial was performed to justify all the involved concerns to develop in vivo drug carrier.