

MWCNT/HAp composite synthesized via ultrasonic spray pyrolysis

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Hydroxyapatite(HAp) is one of biocompatible ceramics because its chemical composition is close to that of natural bone. But HAp has a problem of poor mechanical properties, which are undesirable for scaffold and implant material. Multi-walled carbon nanotube(MWCNT)/HAp composites have been significantly attracted to enhance insufficient mechanical properties, because of outstanding mechanical properties of CNTs. In most solution methods, CNT composite has problem such as agglomeration of CNTs. To prepare a homogeneous dispersion of CNTs is very important due to ensure uniform properties throughout the composite. Spray pyrolysis process, one droplet to one particle conversion system, has a lot of advantages such as preparation of droplet including homogeneous composition component, narrow size distribution of particles, and pure material, phase homogeneity, fast reaction time, and so on.

In this work, MWCNT/HAp composites were synthesized via ultrasonic spray pyrolysis. In precursor solution, CNT was added up to 2 wt%. In this process, ultrasonic atomizer makes the droplet of homogeneous composition of raw materials. The effect of MWCNT/HAp composite's properties on amount of CNTs investigated.