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Preparation of strontium- and/or zinc-doped hydroxyapatite nanoparticles and their polycaprolactone composite fibrous scaffolds

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In this work, hydroxyapatite (HA) and hydroxyapatite doped with Sr (HA-Sr), Zn (HA-Zn) and both Sr-Zn (HA-SrZn) were synthesized by a sol-gel method and combined with polycaprolactone (PCL) to make HA/PCL composites using an electrospinning technique. The synthesized nanoparticles and their composite fibers were investigated using various techniques. The X-Ray Diffraction (XRD) result showed the characteristic peaks of the hydroxyapatite structure; whereas the scanning electron microscopy (SEM) and transmission electron microscopy (TEM) results revealed that the synthesized nanoparticles were successfully incorporated into the randomly interconnected and highly porous PCL matrix.

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