

Formation and Structure of ZrO_2 Added Hydroxyapatite Synthesized from Waste Eggshells

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Stabilized zirconia (ZrO_2) added hydroxyapatites were synthesized from waste eggshells at different percent weigh from 1 to 15 with an increment 2 percent weight by precipitation method. The samples were dried at $100\text{ }^\circ\text{C}$ for 48 h, grounded with pestle and mortar into powder and heated from 200 to $1300\text{ }^\circ\text{C}$. Structure properties of samples before and after heated were characterized by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR) and scanning electron microscope (SEM). The XRD results show that the samples composed hydroxyapatite and tetragonal zirconium dioxide (t- ZrO_2) phase. Hydroxyapatite phase was transformed to tricalcium phosphate (TCP) phase after heated at $700\text{ }^\circ\text{C}$. At $1300\text{ }^\circ\text{C}$, the sample had 3 phase of TCP, t- ZrO_2 and $CaZrO_3$ phase. The composited of samples were confirmed by FTIR results. The morphology and dispersive particle of samples were investigated by SEM.

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