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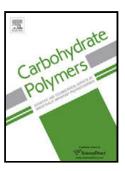
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ACCEPTED MANUSCRIPT

1	Calcium silicate nanowires – An effective alternative for improving
2	mechanical properties of chitosan-hydroxyethyl methacrylate (HEMA)
3	copolymer nanocomposites
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7	
8 9 10	 With increase in amount of nano-CaSiO₃, tensile strength & tensile modulus improved. More number of active sites of nanofiller caused modified mechanical properties. Hydrophilicity & biodegradation of chitosan remained unaffected due to nano-CaSiO₃.
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13	
14	Abstract
15	Nanowires of calcium silicate were successfully synthesized by ultrasonic irradiation process and
16	incorporated into chitosan and hydroxyetheyl methacrylate (HEMA) copolymer matrix by
17	solution blending for efficacious preparation of biodegradable nanocomposites. Remarkable
18	improvement in mechanical properties of the nanocomposites was noticed after micro-tensile
19	analysis. Enlarged surface area and higher aspect ratio of CaSiO ₃ nanowires were the key factors
20	responsible for such improvement. This was supported by EDS and XRD analysis in terms of
21	proper distribution of nanofiller through the copolymer matrix and corresponding rise in
22	percentage crystallanity respectively. Contact angle and biodegradation studies further clarified
23	that nano-CaSiO ₃ did not affect the hydrophilicity and general degradation route of chitosan
24	copolymer respectively. This renders the nano-CaSiO ₃ as an ideal substitute for preparing high
25	performance nanocomposites to be applicable for biomedical applications.

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