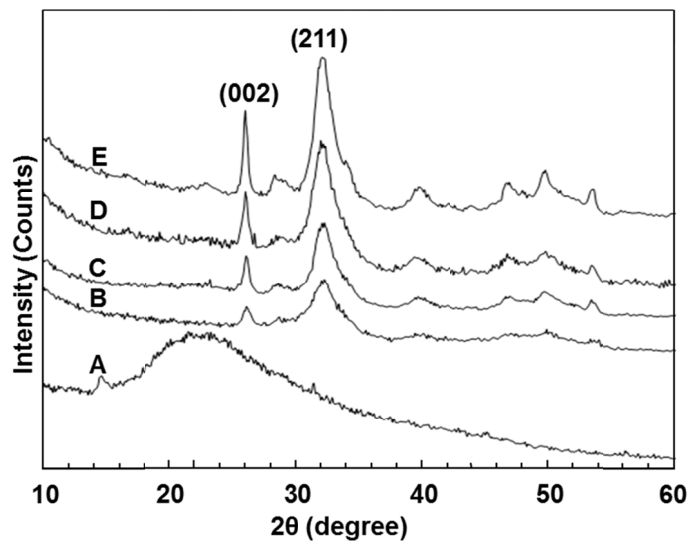
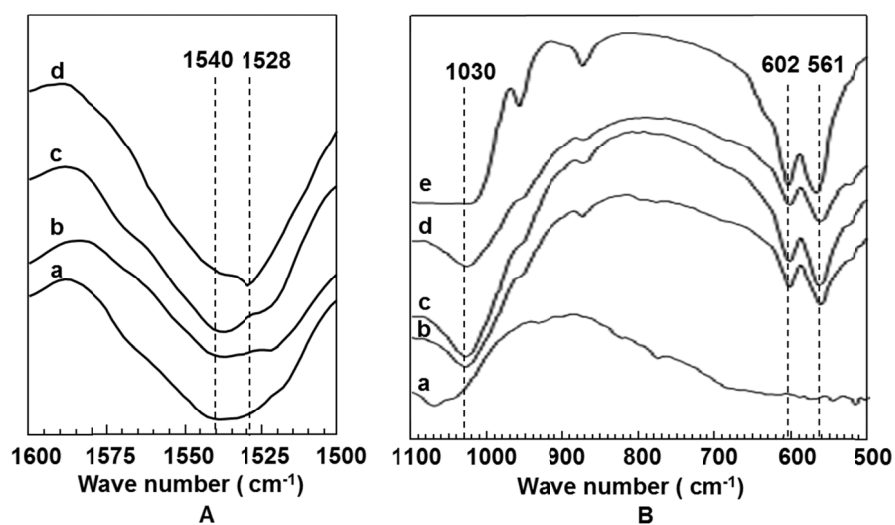


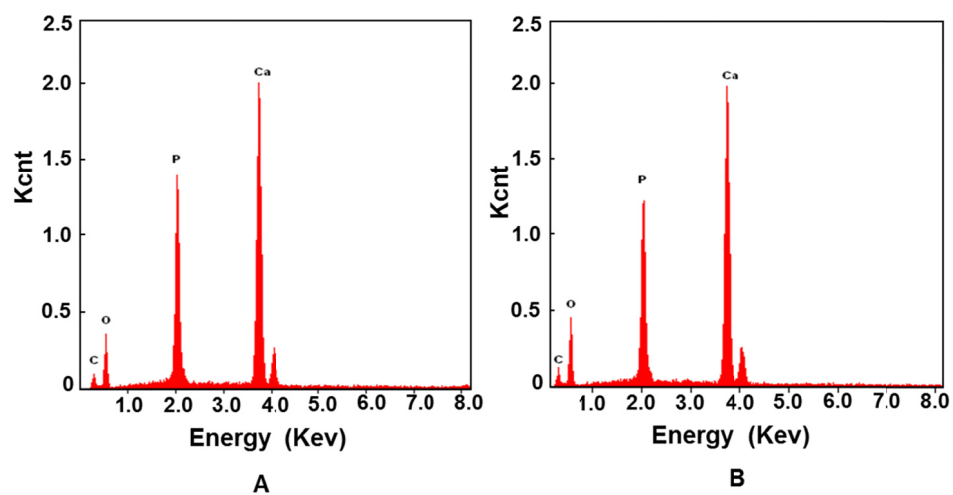
## Supplementary materials



**Figure S1.** XRD patterns of samples: (a) AS; (b) MAS<sub>2</sub>; (c) MAS<sub>6</sub>; (d) MAS<sub>24</sub> and (e) pure HAp powder. XRD patterns show the peak intensities of (002) and (211) of MAS are dramatically enhanced during the increase of the mineralization time.



**Figure S2.** FTIR spectra of samples: (A) the region showing AS; (B) the region showing HAp. (a) AS; (b) MAS<sub>2</sub>; (c) MAS<sub>6</sub>; (d) MAS<sub>24</sub> and (e) pure HAp powder. FTIR spectra show the peaks of 561, 602 cm<sup>-1</sup> are corresponding to the O–P–O stretching vibration, and the peak at 1030 cm<sup>-1</sup> is assigned to the P–O stretching vibration of HAp. The amide I shifted from 1540 to 1525 cm<sup>-1</sup> indicated that AS was assembled into  $\beta$ -sheet with nucleation of HAp.



**Figure S3.** EDX spectra of samples: (A) MAS<sub>2</sub> and (B) MAS<sub>24</sub>. EDX spectrum of MAS<sub>2</sub> and MAS<sub>24</sub> showed prominent peaks for P and Ca, the calculated atomic ratios were Ca/P=1.56 (A) and 1.66 (B), respectively.

**Table S1. The amino acid composition analysis of AS**

<b>Amino acid</b>	<b>AS</b>	<b>Amino acid</b>	<b>AS</b>
<b>Ala</b>	24.25	<b>Val</b>	0.40
<b>Gly</b>	38.85	<b>Leu</b>	0.50
<b>Tyr</b>	0.89	<b>Ile</b>	0.22
<b>Ser</b>	13.00	<b>Phe</b>	7.51
<b>Asp</b>	6.69	<b>Pro</b>	0.52
<b>Arg</b>	3.17	<b>Thr</b>	0.38
<b>His</b>	1.11	<b>Met</b>	0.00
<b>Glu</b>	1.22	<b>Cys</b>	0.12
<b>Lys</b>	1.15		