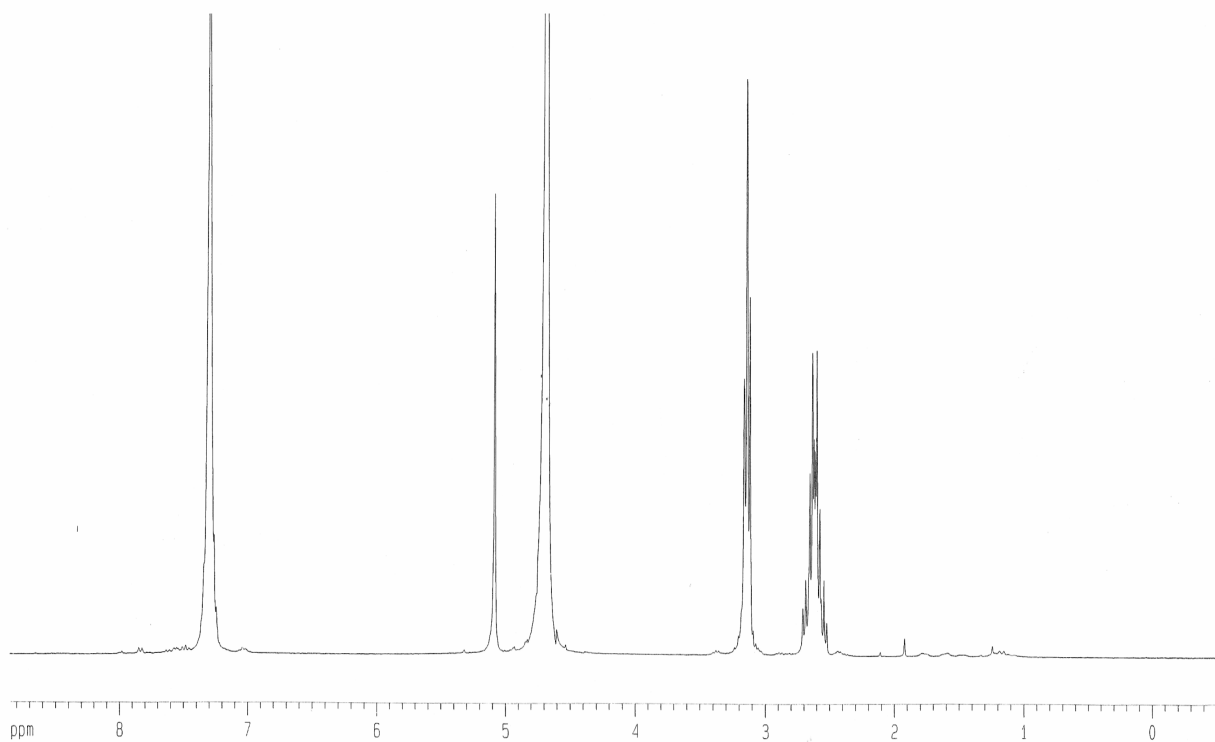


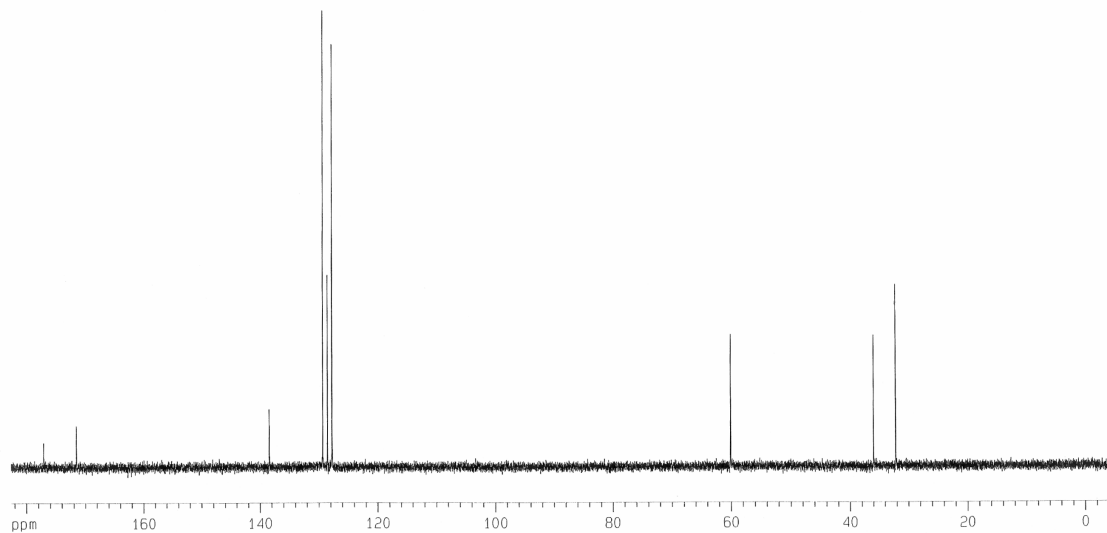
## Supporting information

# Water soluble synthetic dipeptide-based biodegradable nanoporous materials

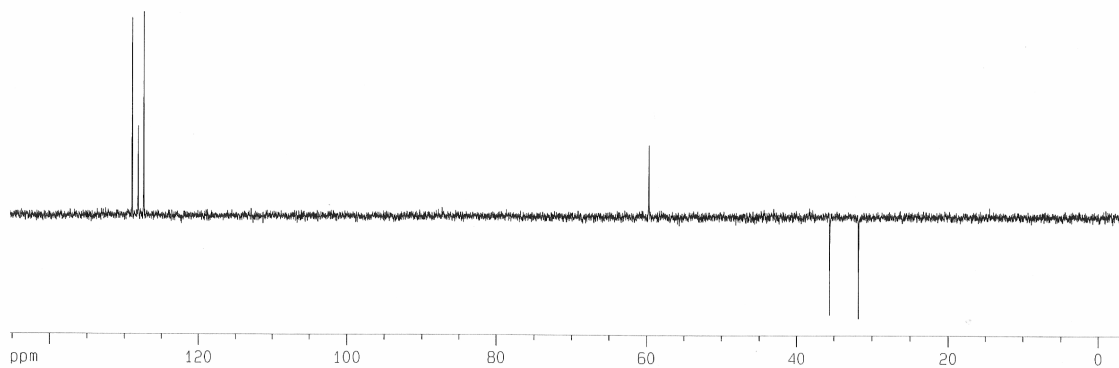
Samit Guha, Tushar Chakraborty, and Arindam Banerjee\*



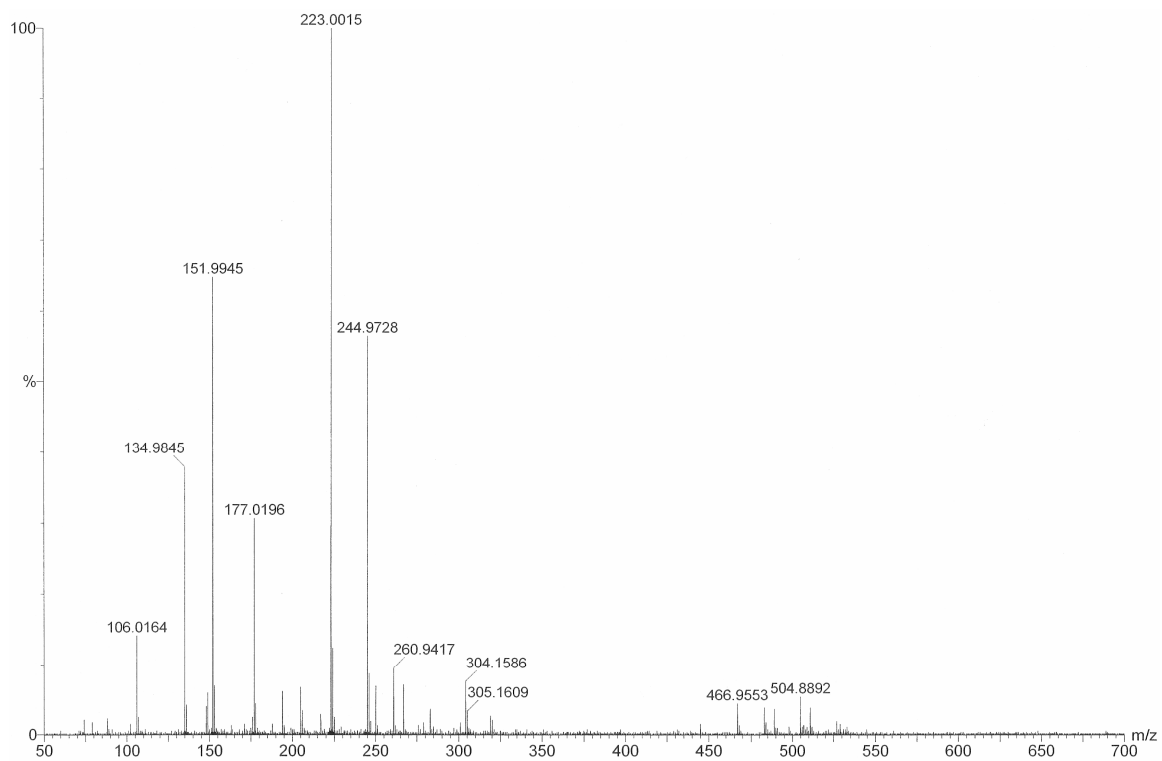
**Figure S1.**  $^1\text{H}$  NMR (300 MHz,  $\text{D}_2\text{O}$ ) spectrum of dipeptide **1**.



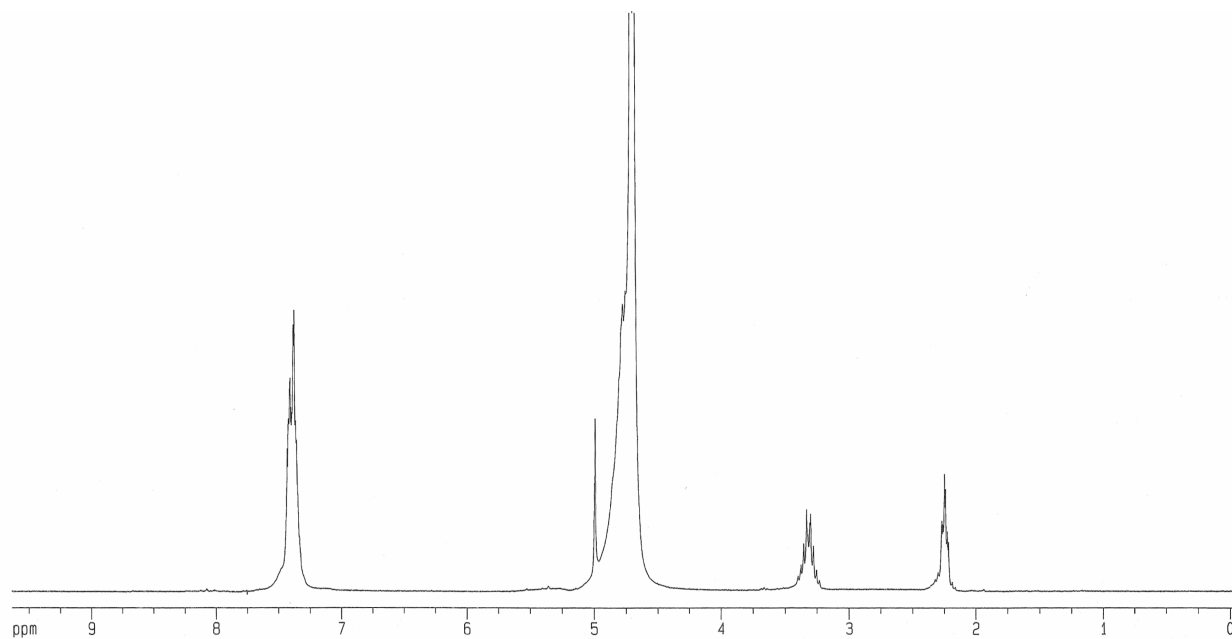
**Figure S2.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{D}_2\text{O}$ ) spectrum of dipeptide **1**.



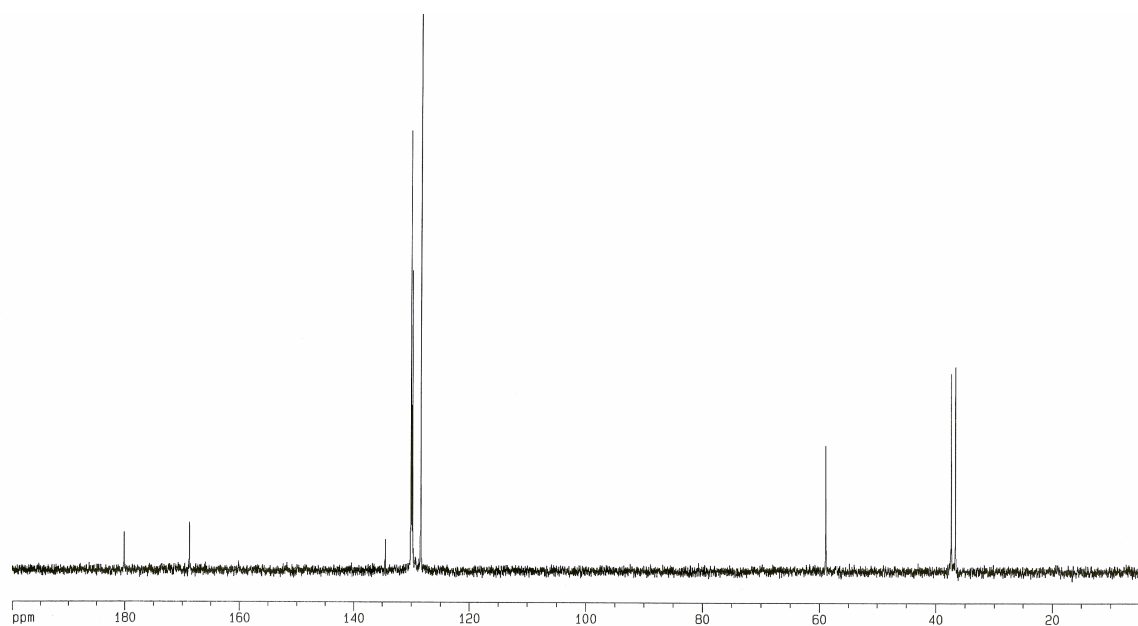
**Figure S3.** DEPT 135 (75 MHz,  $\text{D}_2\text{O}$ ) spectrum of dipeptide **1**.



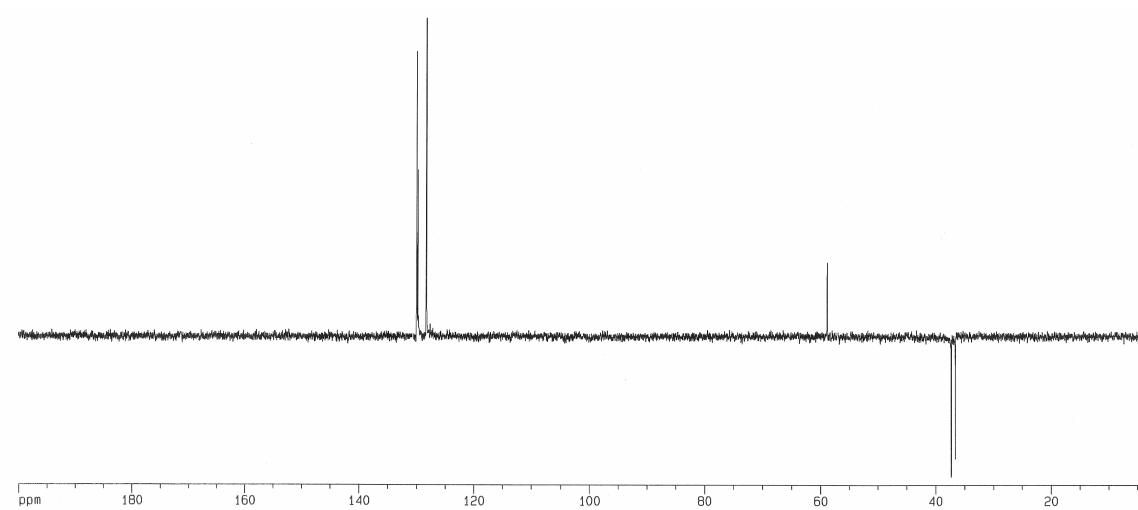
**Figure S4.** HRMS (ESI) data of dipeptide **1**.



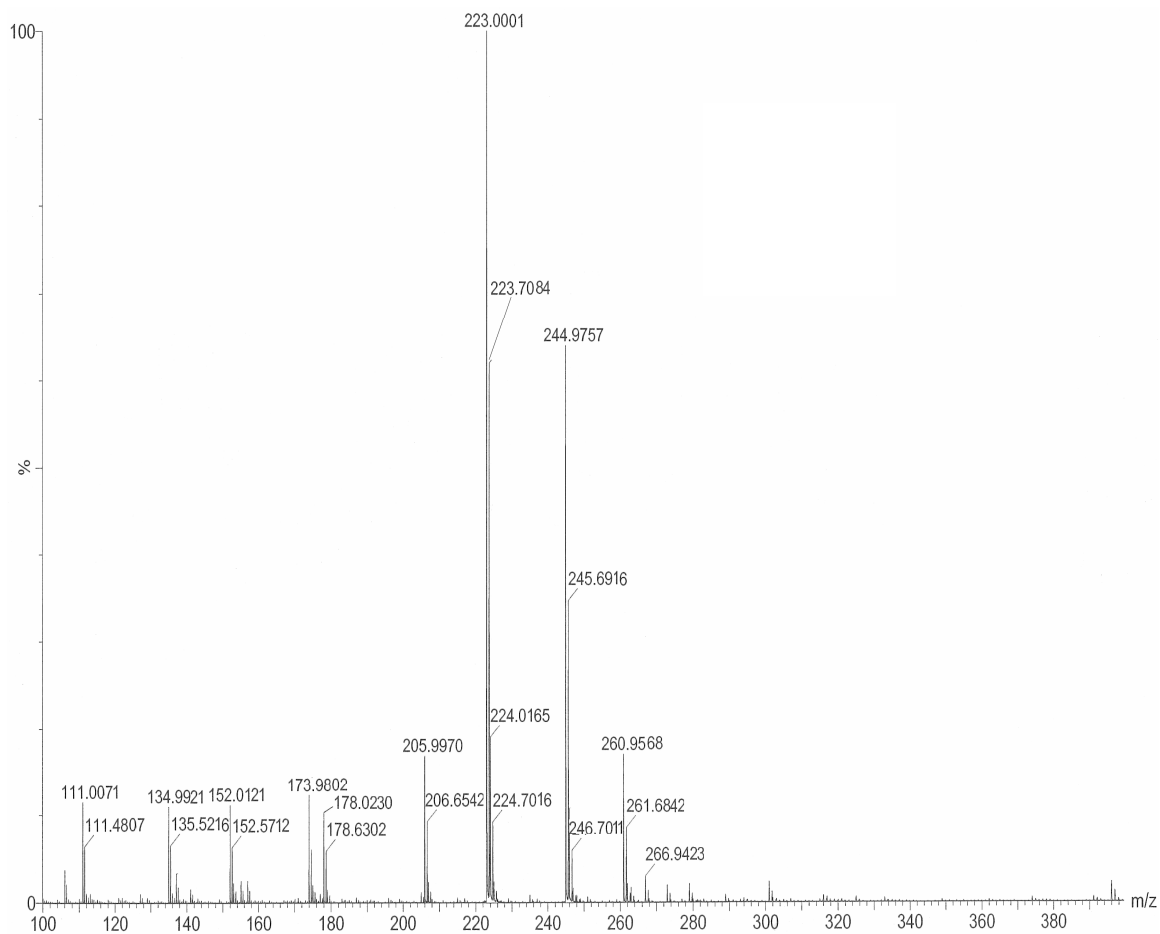
**Figure S5.**  $^1\text{H}$  NMR (300 MHz,  $\text{D}_2\text{O}$ ) spectrum of dipeptide **2**.



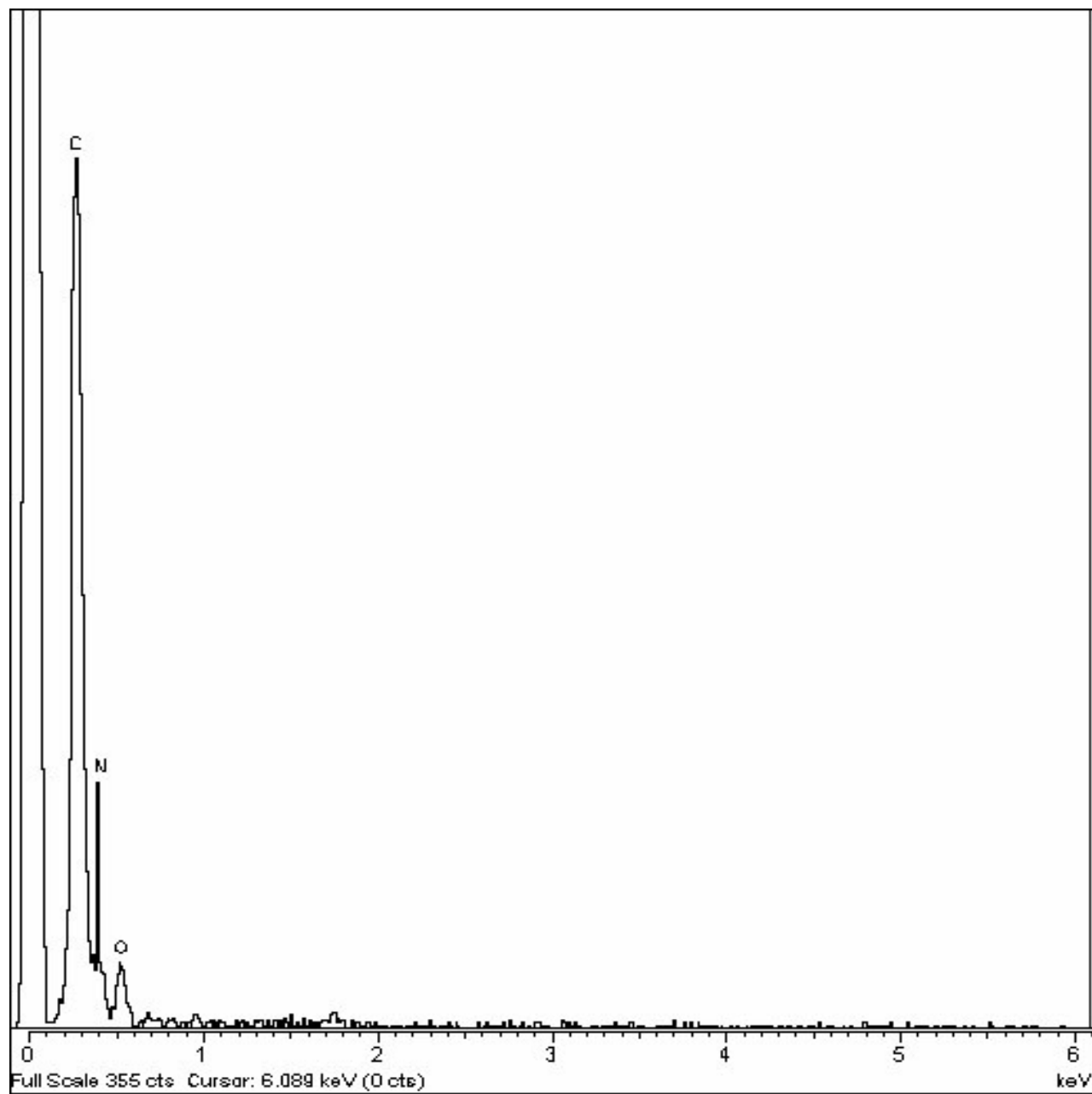
**Figure S6.** <sup>13</sup>C NMR (75 MHz, D<sub>2</sub>O) spectrum of dipeptide **2**.



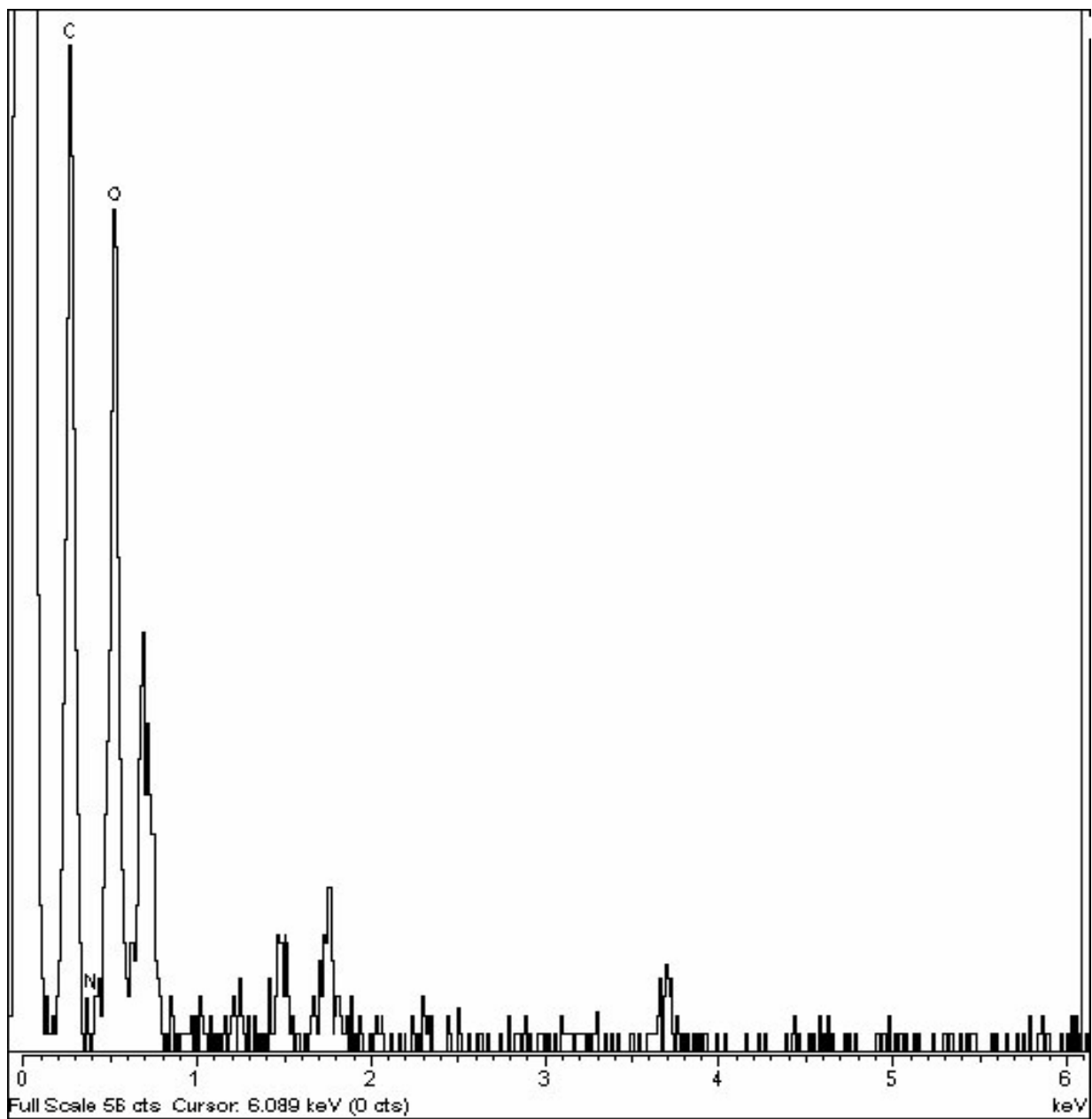
**Figure S7.** DEPT 135 (75 MHz, D<sub>2</sub>O) spectrum of dipeptide **2**.



**Figure S8.** HRMS (ESI) data of dipeptide **2**.

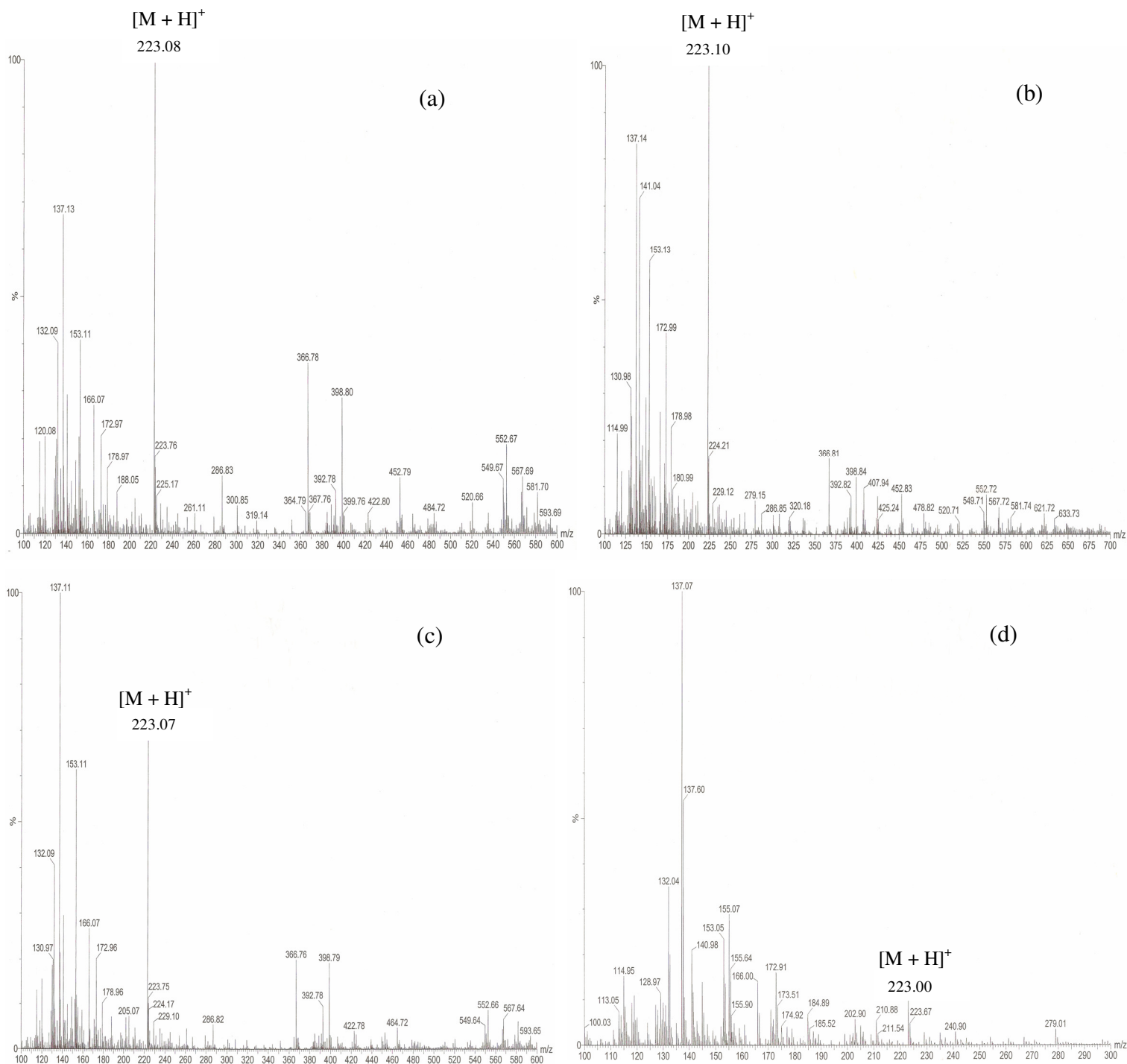


**ESI Fig. S1a** EDX analysis of nanoporous material based on dipeptide **1** indicates the presence of C, N and O.

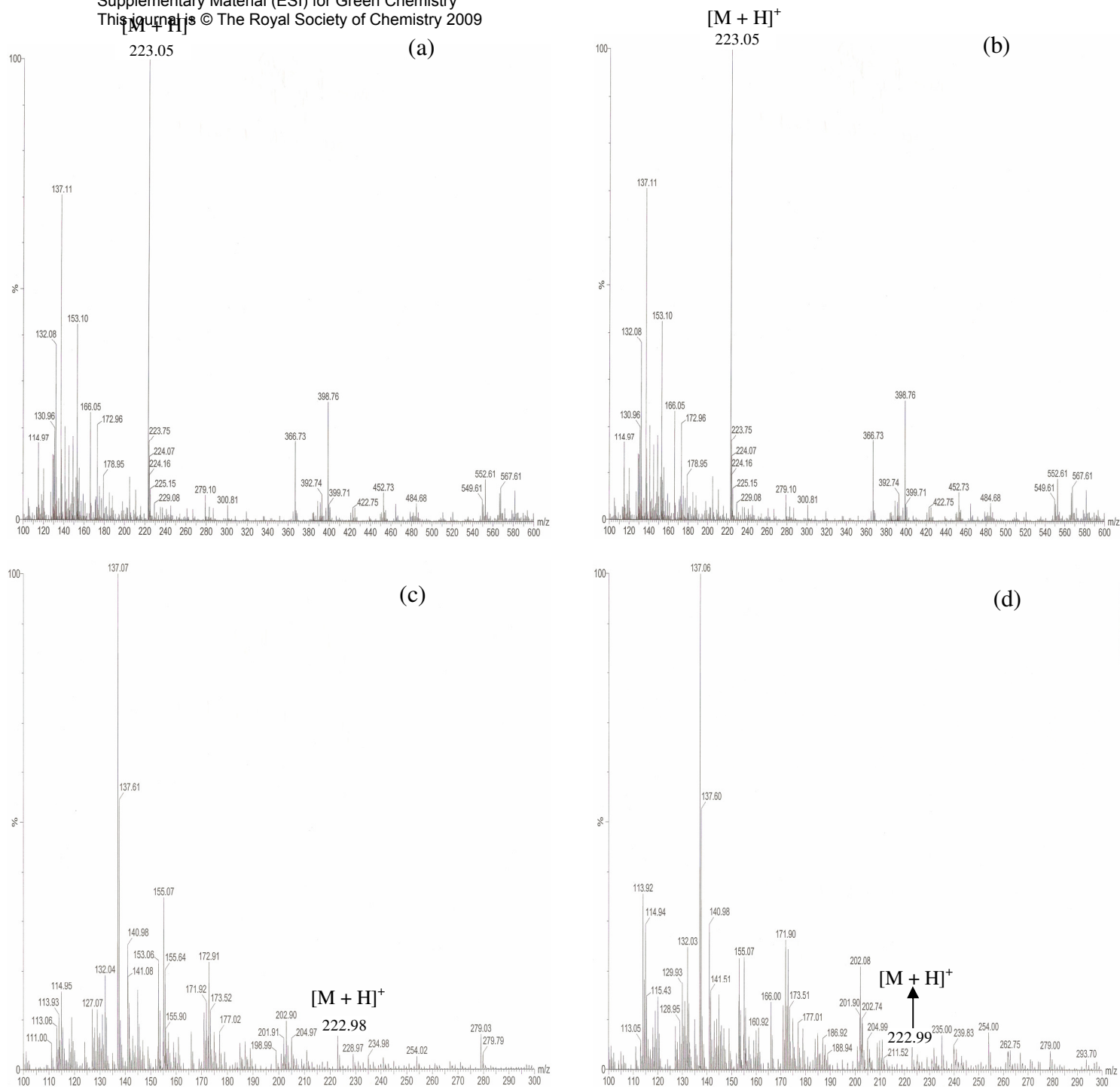


**ESI Fig. S1b** EDX analysis of nanoporous material based on dipeptide **2** indicates the presence of C, N and O.

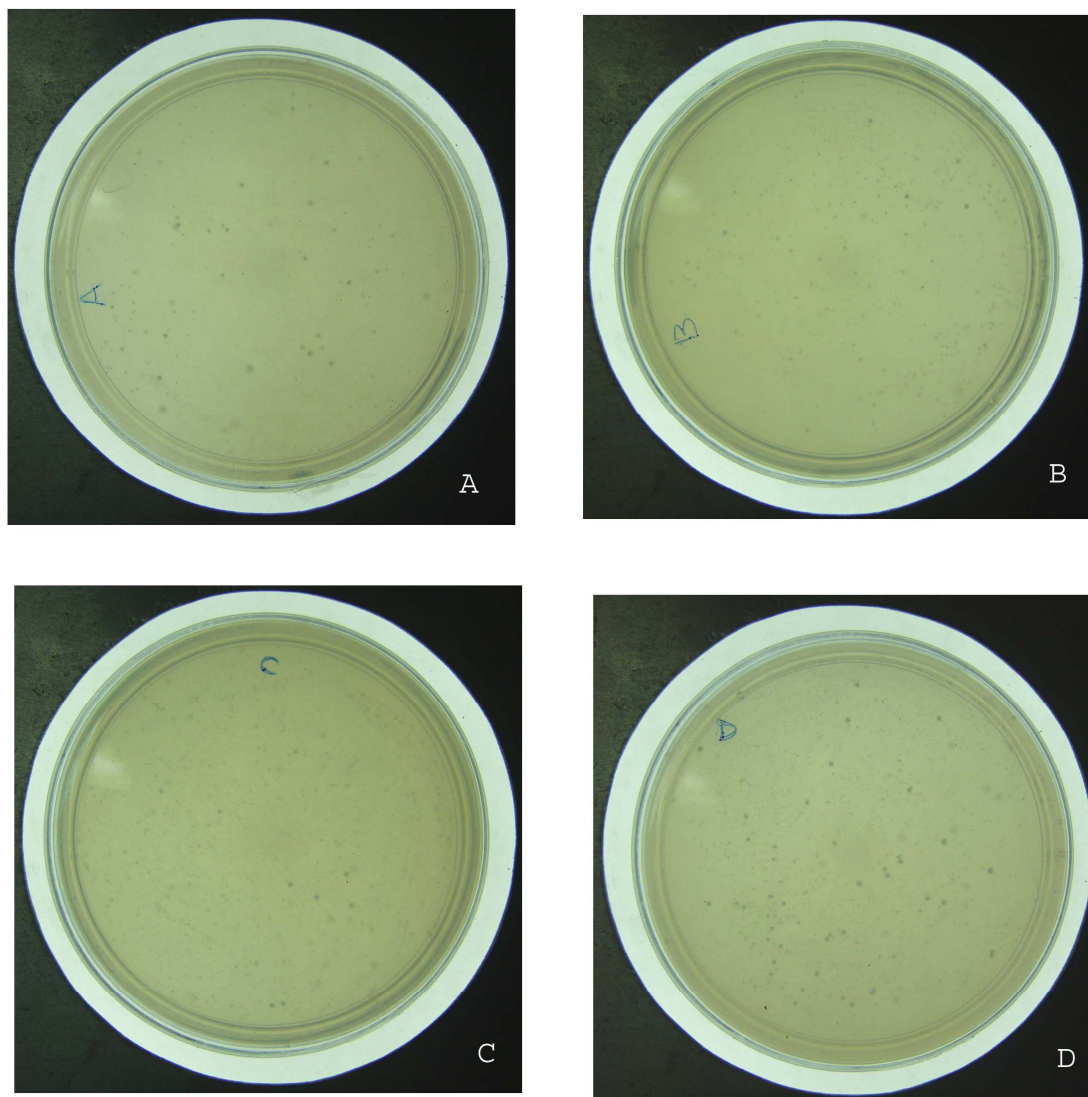




**ESI Fig. S2** (a–d) Time dependent biodegradation of dipeptide **1** at 0h, 24h (1 day), 7 days and 14 days respectively after treatment with bacterial consortium quantified through ESI-MS data suggests that dipeptide **1** molecule is biodegradable. It has been observed that the intensity of the molecular ion peak for dipeptide **1**,  $[M+H]^+$  is gradually decreasing with respect to time. This is due to the result of the degradation of the peptide.



**ESI Fig. S3** (a–d) Time dependent biodegradation of dipeptide **2** at 0h, 24h (1 day), 7 days and 14 days respectively after treatment with bacterial consortium quantified through ESI-MS data suggests that dipeptide **2** molecule is biodegradable. It has been observed that the intensity of the molecular ion peak for dipeptide **2**,  $[M+H]^+$  is gradually decreasing with respect to time. This is due to the result of the degradation of the peptide.



**ESI Fig. S4** Bacterial colonies from the culture medium grown on M9 agar plates from 0 hr (A), 24 hr (B), 7 days (C) and 14 days (D) after growth in M9-peptide medium. The heterogeneity of the consortia is reflected in the different colony morphology.