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Bio-degradable electrospun nanofibers encompassing dioxidovanadium benzimidazole compounds as potential drug delivery systems for diabetes mellitus

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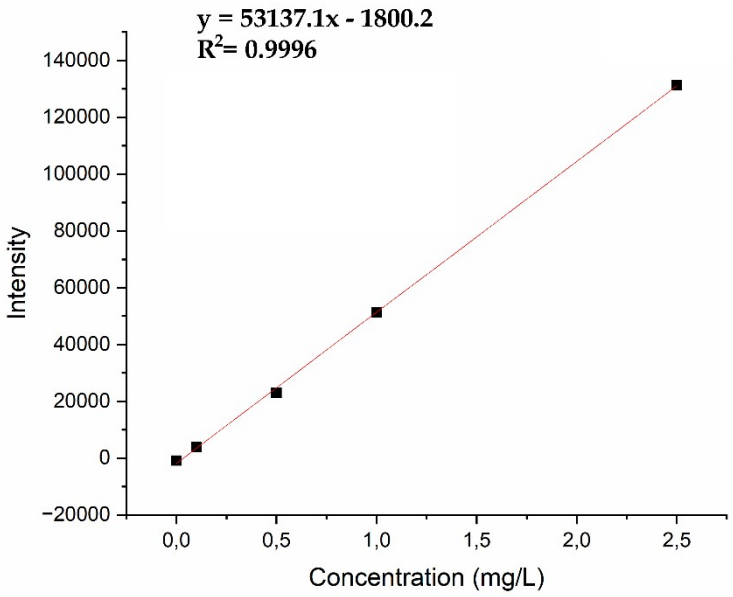

Fig.S1 The ICP calibration curve for various standardized ruthenium samples at 311 nm.

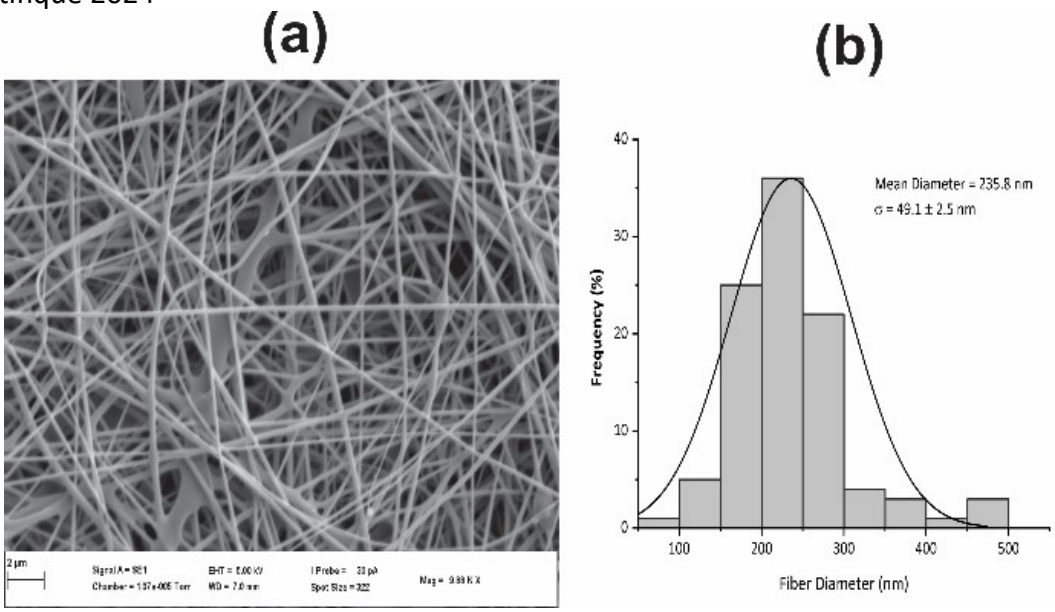

Fig. S2 (a) SEM image of unmodified PVA|CS-ENFs and their (b) fiber diameter distribution histogram.

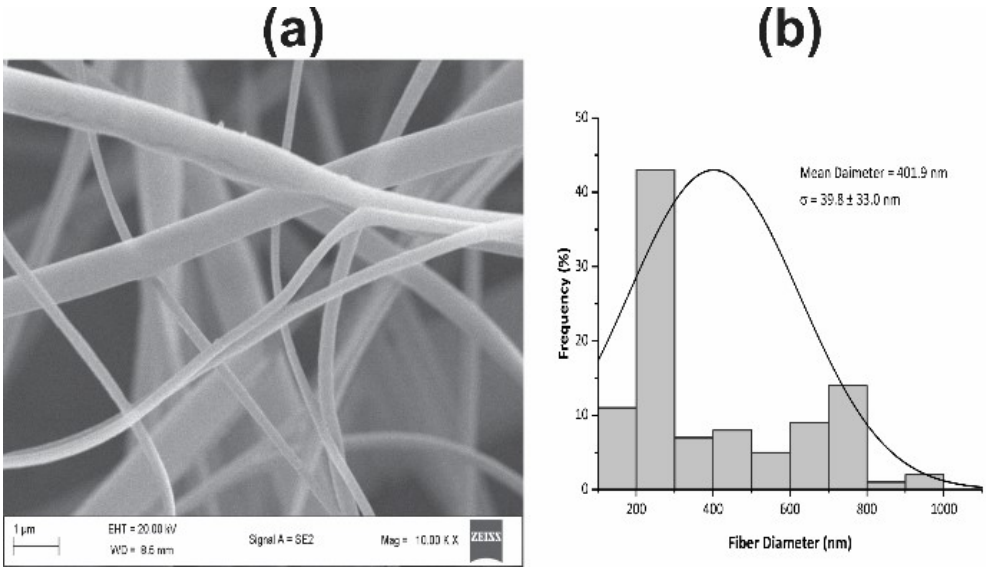

Fig. S3 (**a**) SEM image of PVA|CS-**1**-(SB)-ENFs and their (**b**) fiber diameter distribution histogram.

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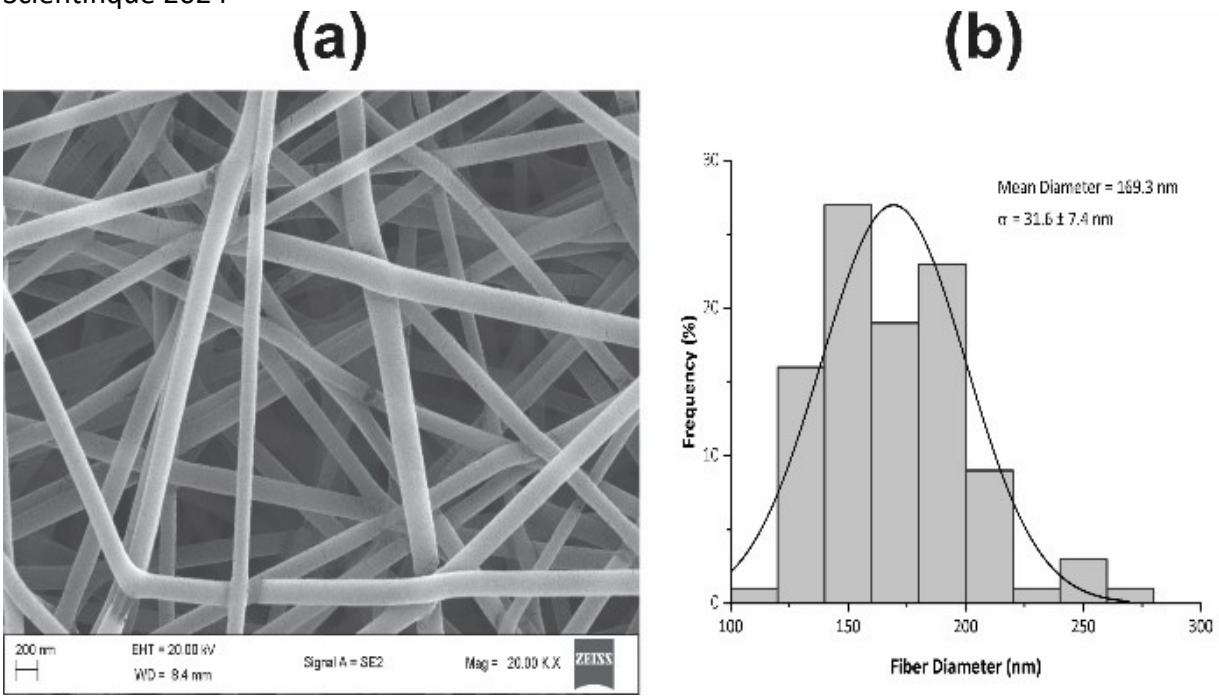

Fig. S4 (**a**) SEM image of **2** PVA|CS-**2**-(DB)-ENFs and their (**b**) fiber diameter distribution histogram.

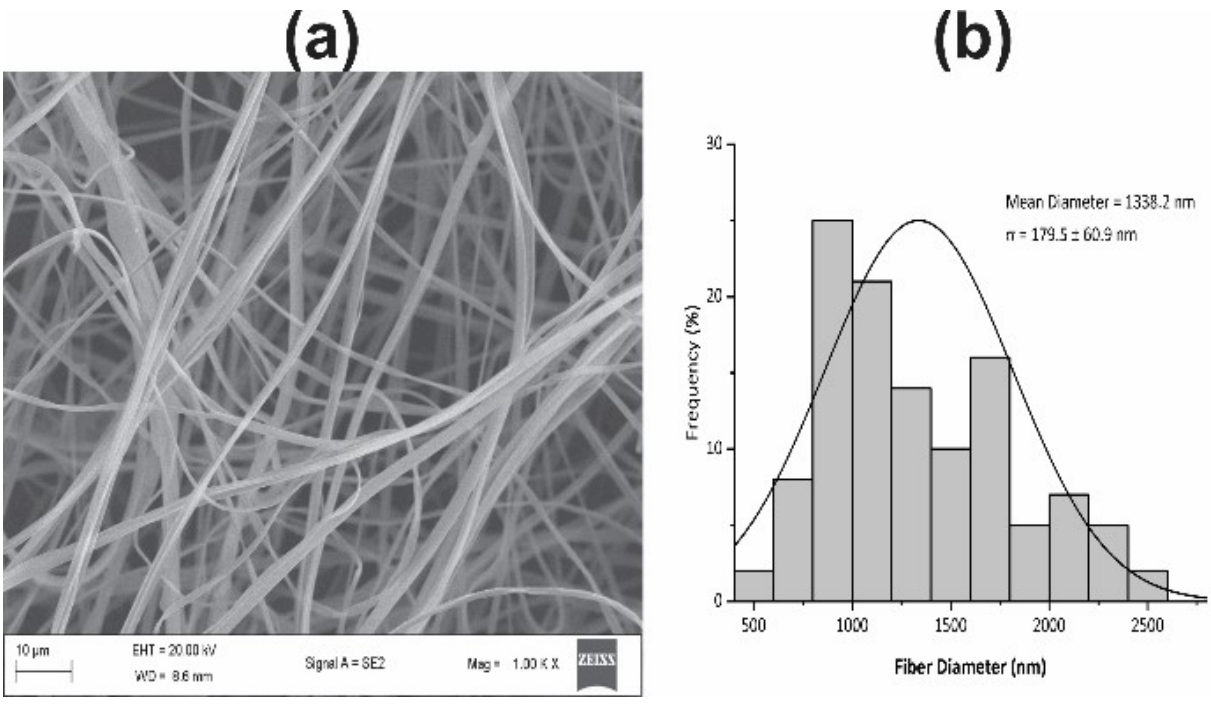

Fig. S5 (**a**) SEM image of PVA|CS-**2**-(SB)-ENFs and their (**b**) fiber diameter distribution histogram.

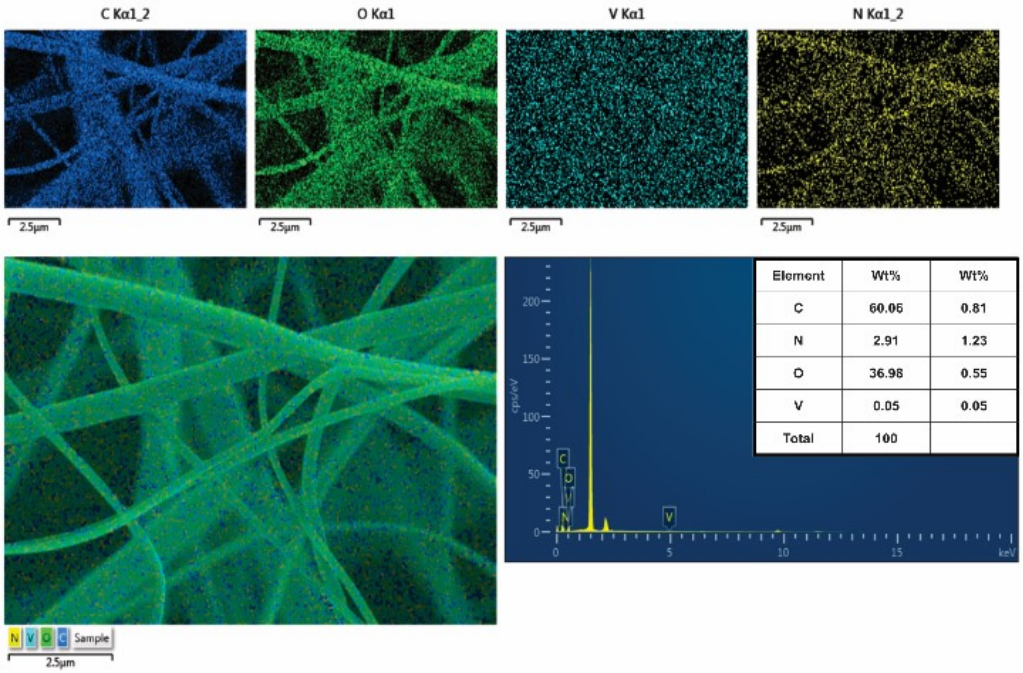

Fig. S6 Elemental mapping of PVA|CS-**1**-(SB)-ENFs.

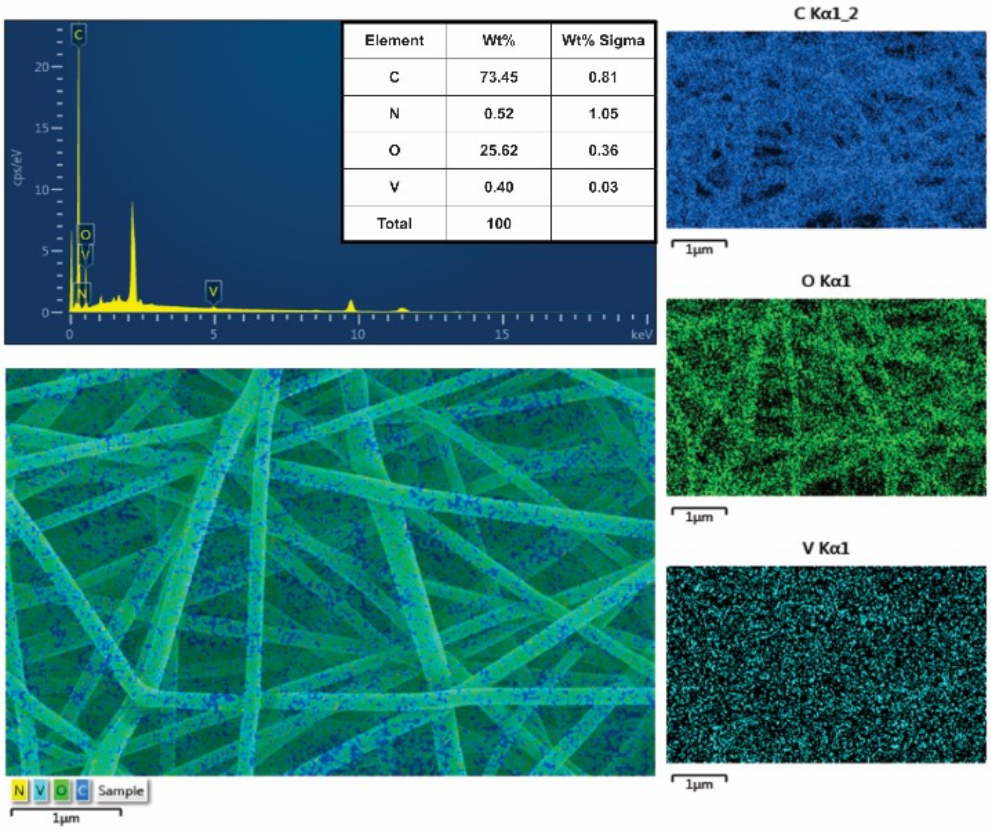

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Fig. S7 Elemental mapping of PVA|CS-**2**-(DB)-ENFs.

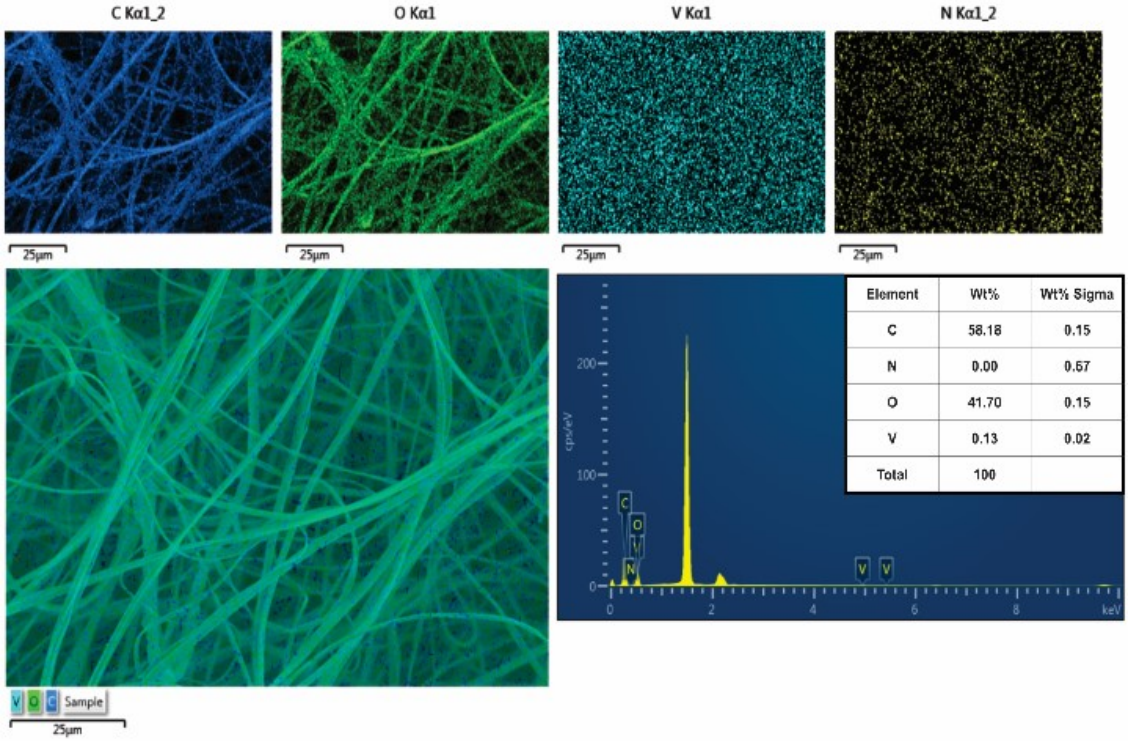

Fig. S8 Elemental mapping of PVA|CS-**2**-(SB)-ENFs

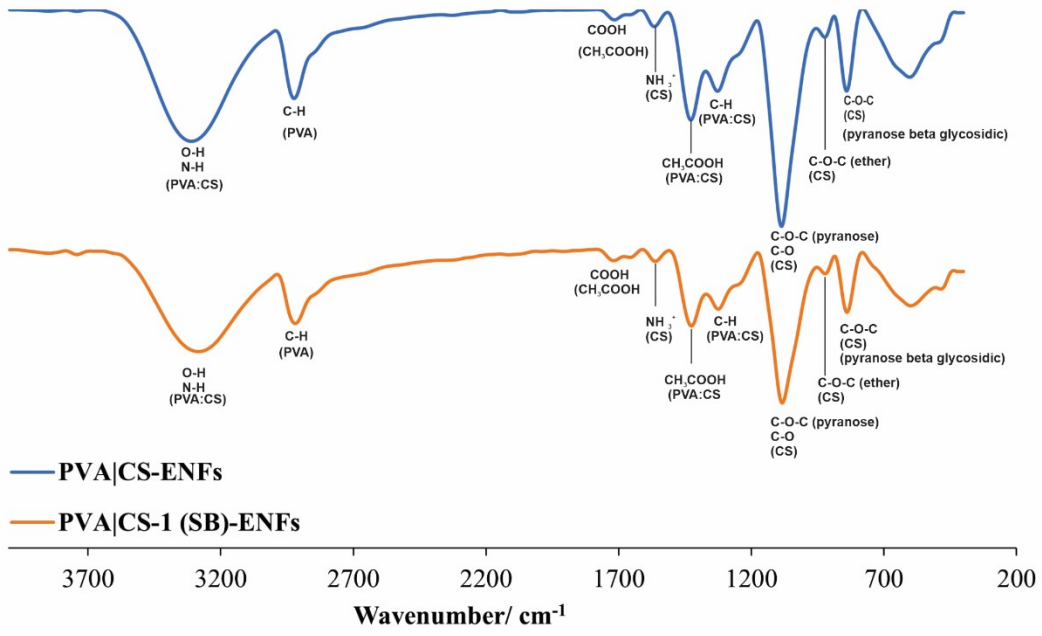

Fig. S9 Stacked FTIR spectra of PVA|CS ENFs and PVA|CS-**1** (SB) ENFs.

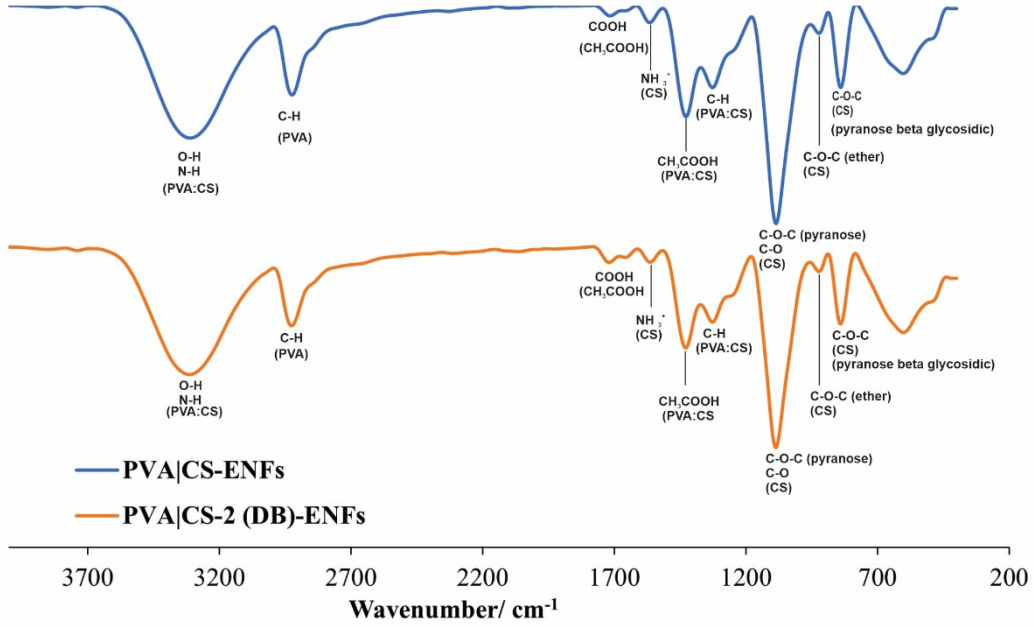

Fig.S10 Stacked FTIR spectra of PVA|CS-ENFs and PVA|CS-**2**-(DB)-ENFs.

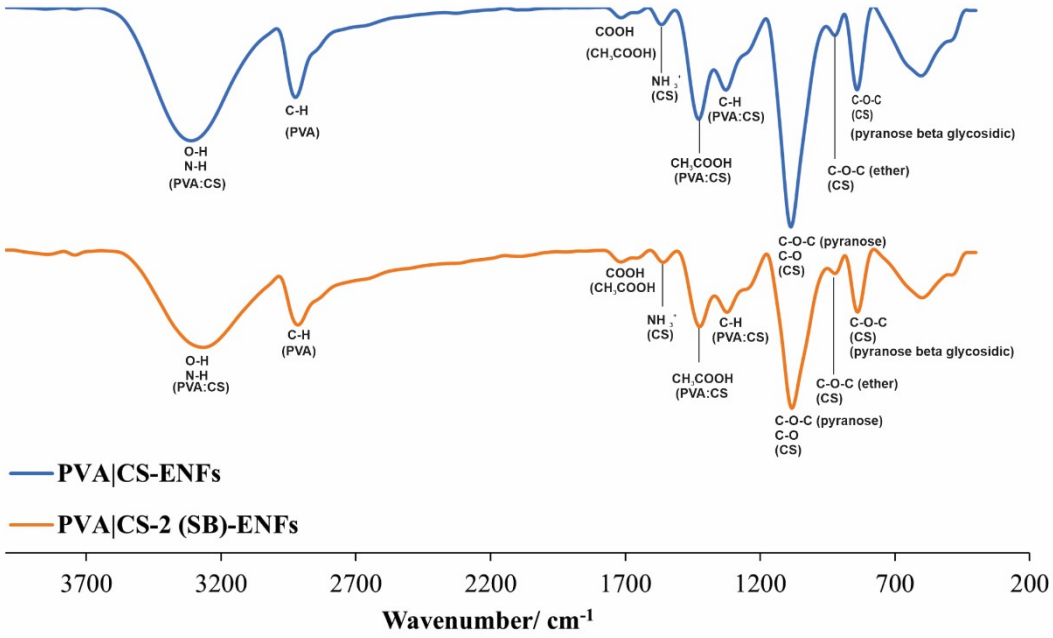

Fig.S11 Stacked FTIR spectra of PVA|CS-ENFs and PVA|CS-**2**-(SB)-ENFs.

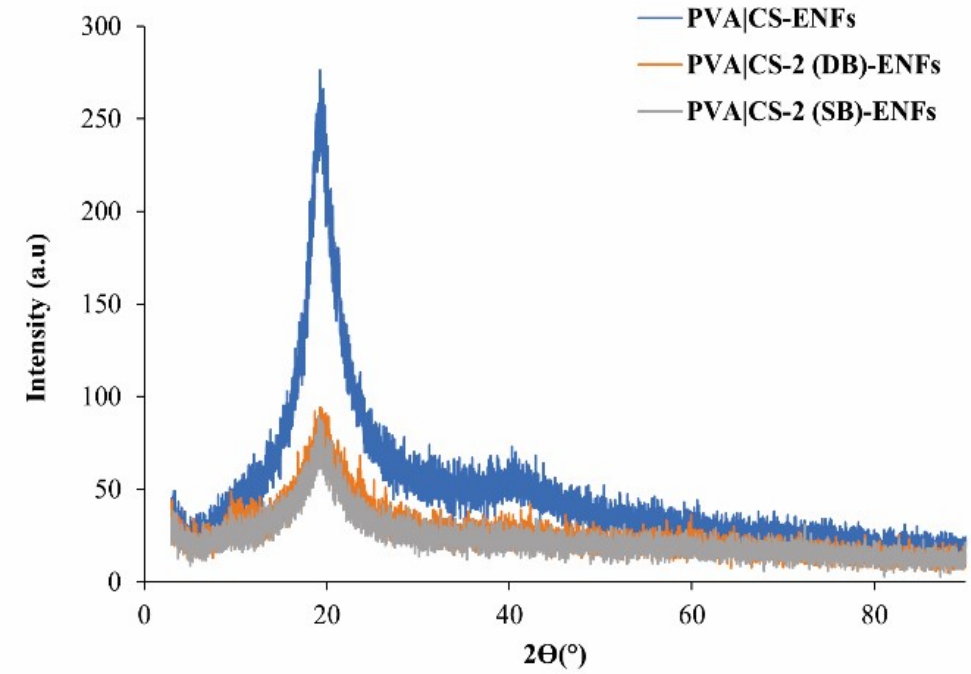

Fig.S12 Overlay powder XRD patterns of PVA|CS-ENFs and PVA|CS-**2**-(DB)-ENFs.

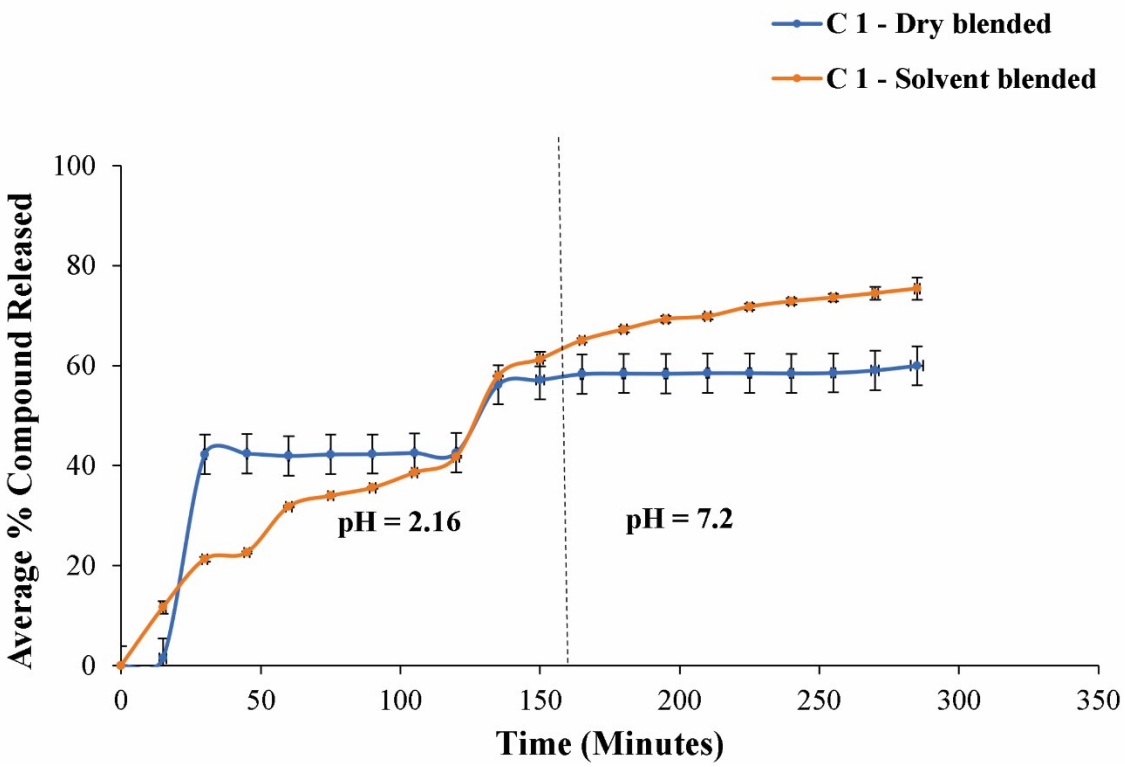

Fig. S13 Release profile of the complex-loaded ENFs of **1**, using the pH change method (%RSD <5%; n=2).

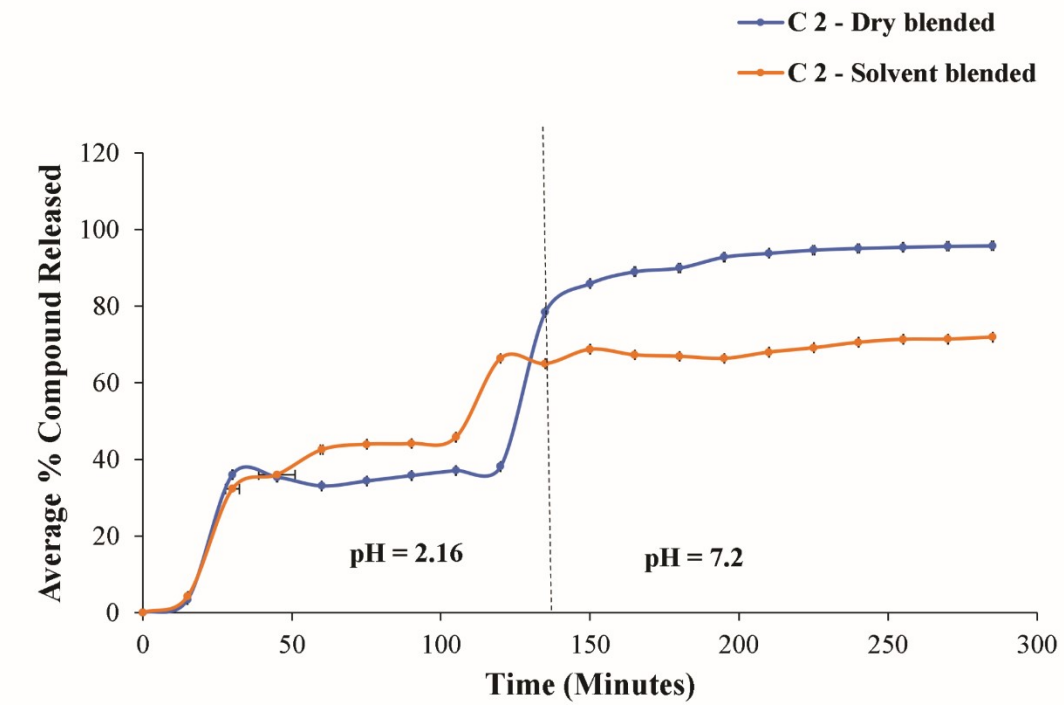

Fig.S14 *In-vitro* release profile of PVA|CS-**2**-ENFs (by the DB and SB methods at a pH of 2.16 (for the first 2 h) and at 7.2 (for the subsequent 3 h) [%RSD <5%; n=2].

Table S1 ICP-OES vanadium trace concentrations (mg/L) across samples at different time intervals, collected at 309.310 nm.

Sample	Physiological Medium	1 hr	2 hrs	4 hrs	24 hrs	48 hrs
1	0.174	0.164	0.161	0.166	0.253	0.249
2	0.212	0.164	0.161	0.253	0.252	0.250
PVA|CS-1 (DB)	0.008	0.165	0.158	0.251	0.251	0.250
PVA|CS-1 (SB)	0.163	0.169	0.158	0.254	0.253	0.249
PVA|CS-2 (DB)	0.162	0.158	0.157	0.253	0.250	0.247
PVA|CS-2 (SB)	0.164	0.160	0.163	0.253	0.251	0.249

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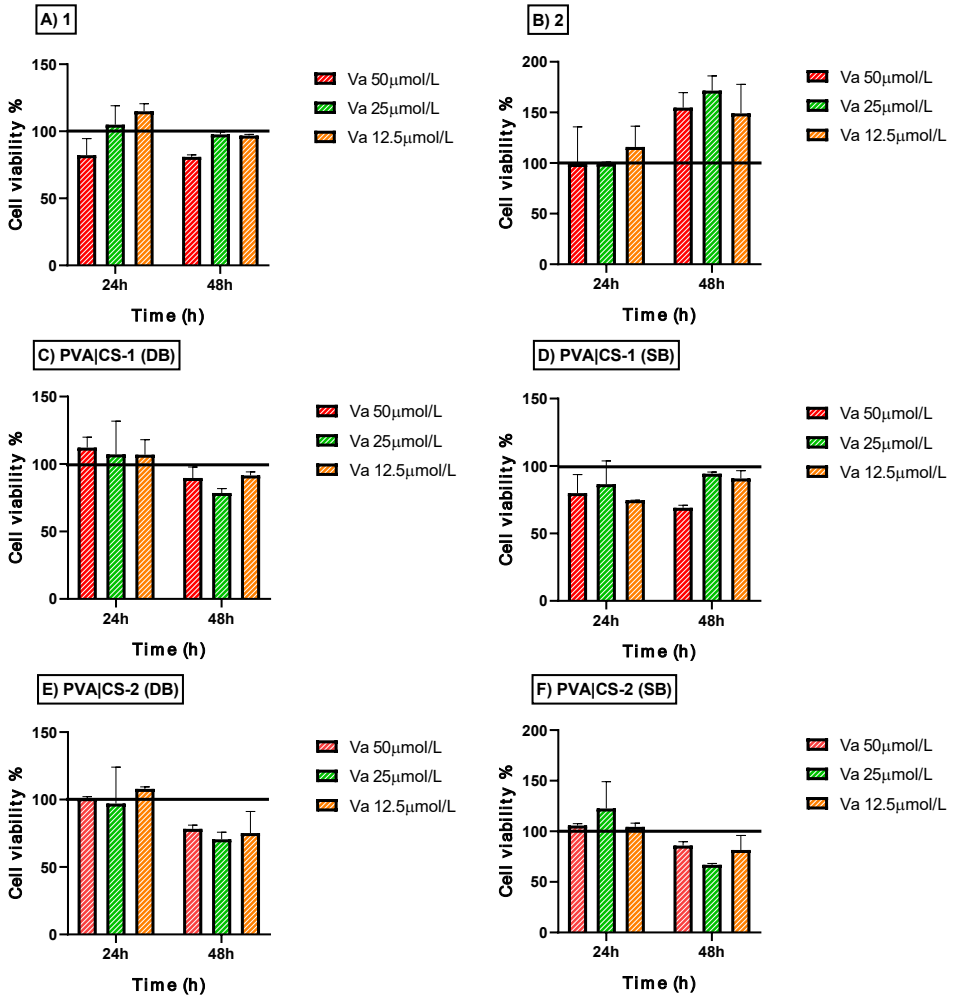

Fig.S15 The effects of vanadium heterocyclic compound-loaded ENFs on the cell viability of HepG2 liver cells over the treatment period of 24 and 48 hours. $\sigma < 0.05$ in comparison to the control group (Va: concentration of complex or complex-loaded ENF).

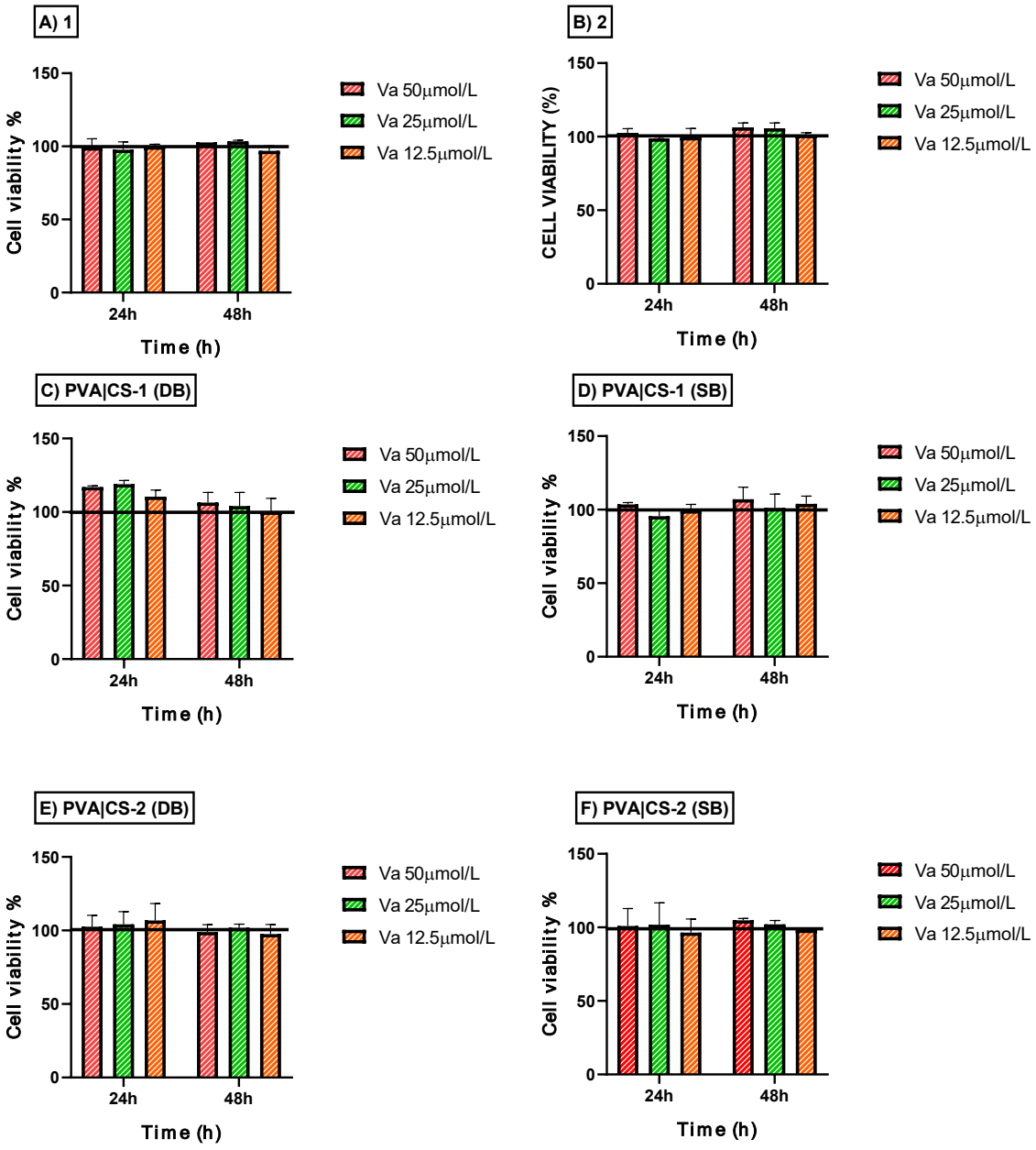

Fig.S16 The effects of vanadium heterocyclic compound-loaded ENFs on the cell viability of C2C12 skeletal muscle cells over the treatment period of 24 and 48 hours. $\sigma < 0.05$ in comparison to the control group (Va: concentration of complex or complex-loaded ENF).