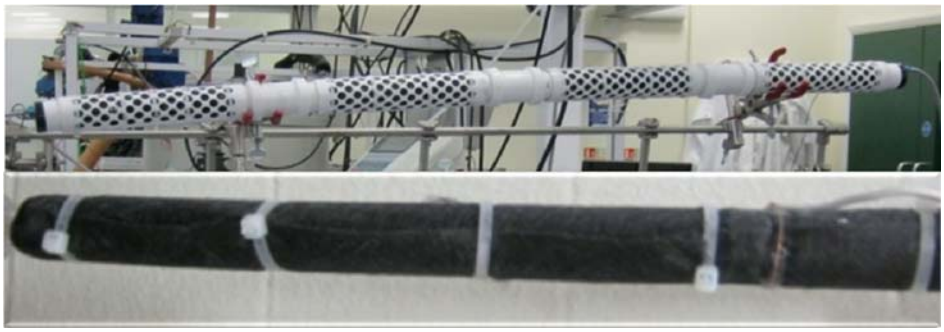
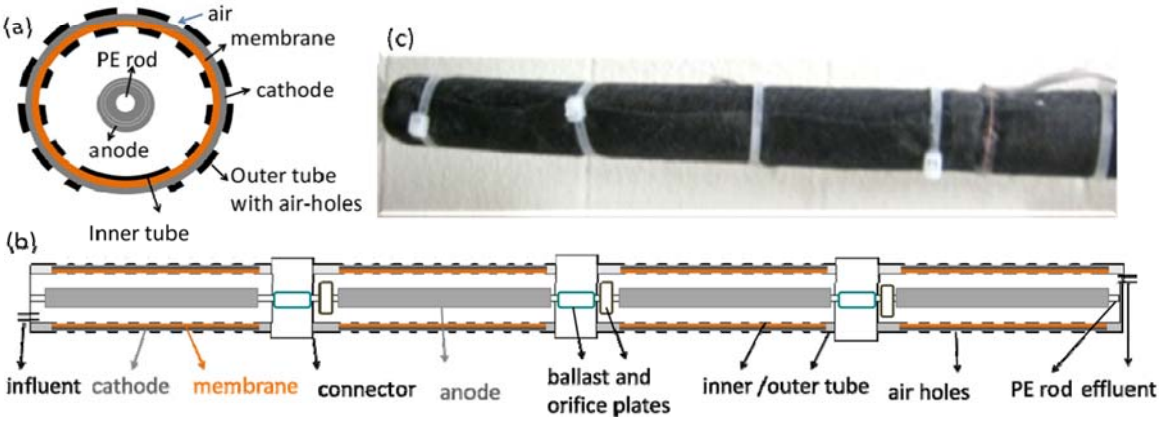
Table 1
Control experiments on washdown water.

			cycle							
			0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
COD	**(mg l^{-1})**	**CRT**	1160	1110	1037	970	1025	932	843	862
		CF	1160	1161	1055	1053	1077	1023	855	871
pH	**(-)**	**CRT**	6.89	6.87	6.82	6.82	6.86	6.82	6.80	6.82
		CF	6.89	6.89	6.86	6.91	6.92	6.90	6.92	6.95
conductivity χ	**(mS cm^{-1})**	**CRT**	7.45	7.45	7.28	7.27	7.23	7.50	7.34	7.31
		CF	7.45	7.52	7.44	7.31	7.35	7.09	6.82	6.77
acetic acid	**(mg l^{-1})**	**CRT**	314	322	325	322	312	259	230	217
		CF	314	308	313	299	276	260	260	215
propionic acid	**(mg l^{-1})**	**CRT**	155	158	154	161	174	176	168	155
		CF	155	158	157	157	149	147	145	127

Substrate was stored in bottles and kept at room temperature (CRT) or at 4 °C-fridge (CF), during operation Mode B (cycle=number of days)



(a)



(b)

Fig. 1. Photograph and schematic cross-sectional views of the four-module tubular Microbial Fuel Cell reactor (a); Hydraulic and external electrical loading system arrangements for Mode A (b) and Mode B (c).

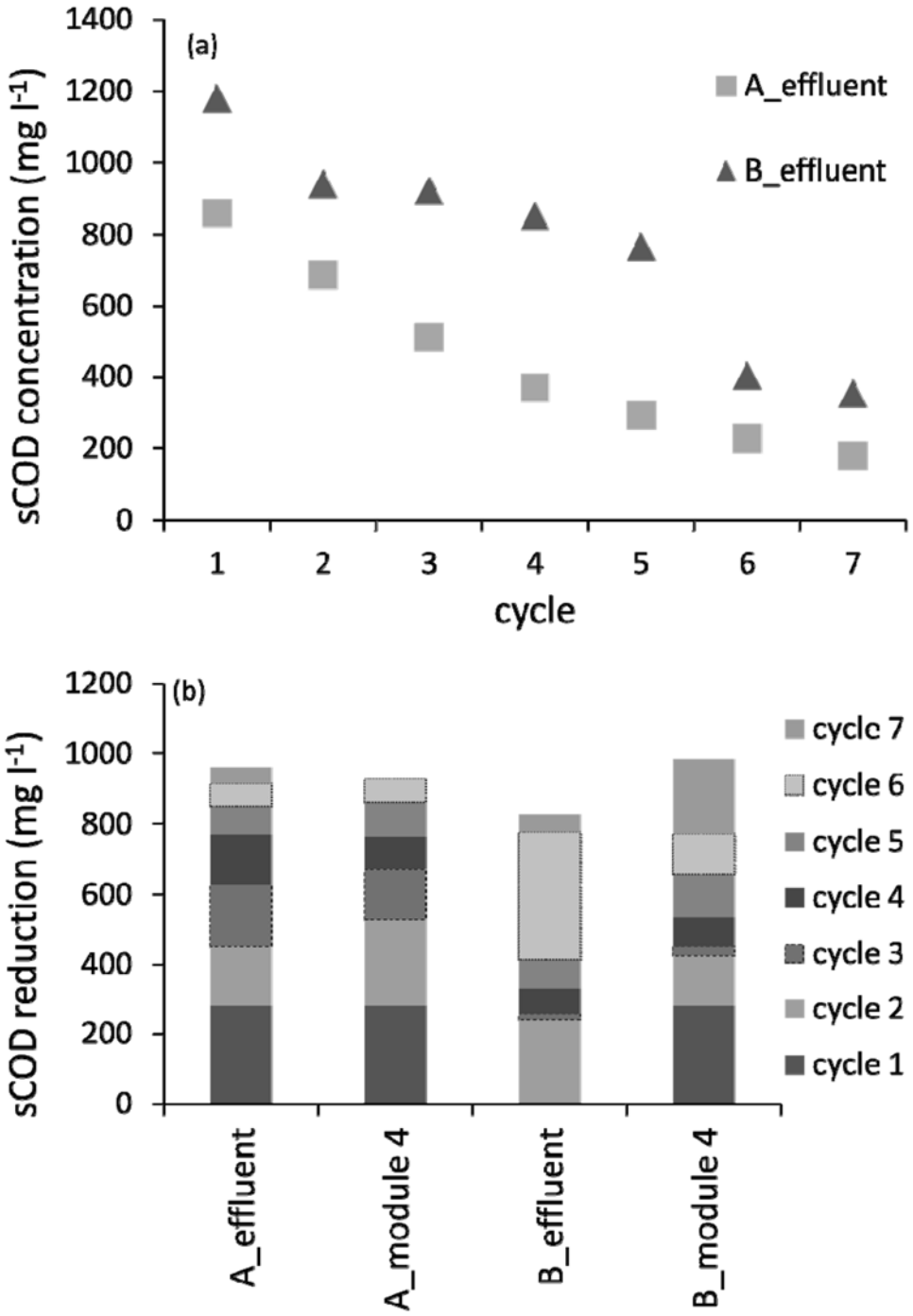


Fig. 2. Soluble COD reduction (a) and the reduction in sCOD in each of the 7 cycles at two different sampling points (module 4 and the effluent) (b) in operating Modes A and B.

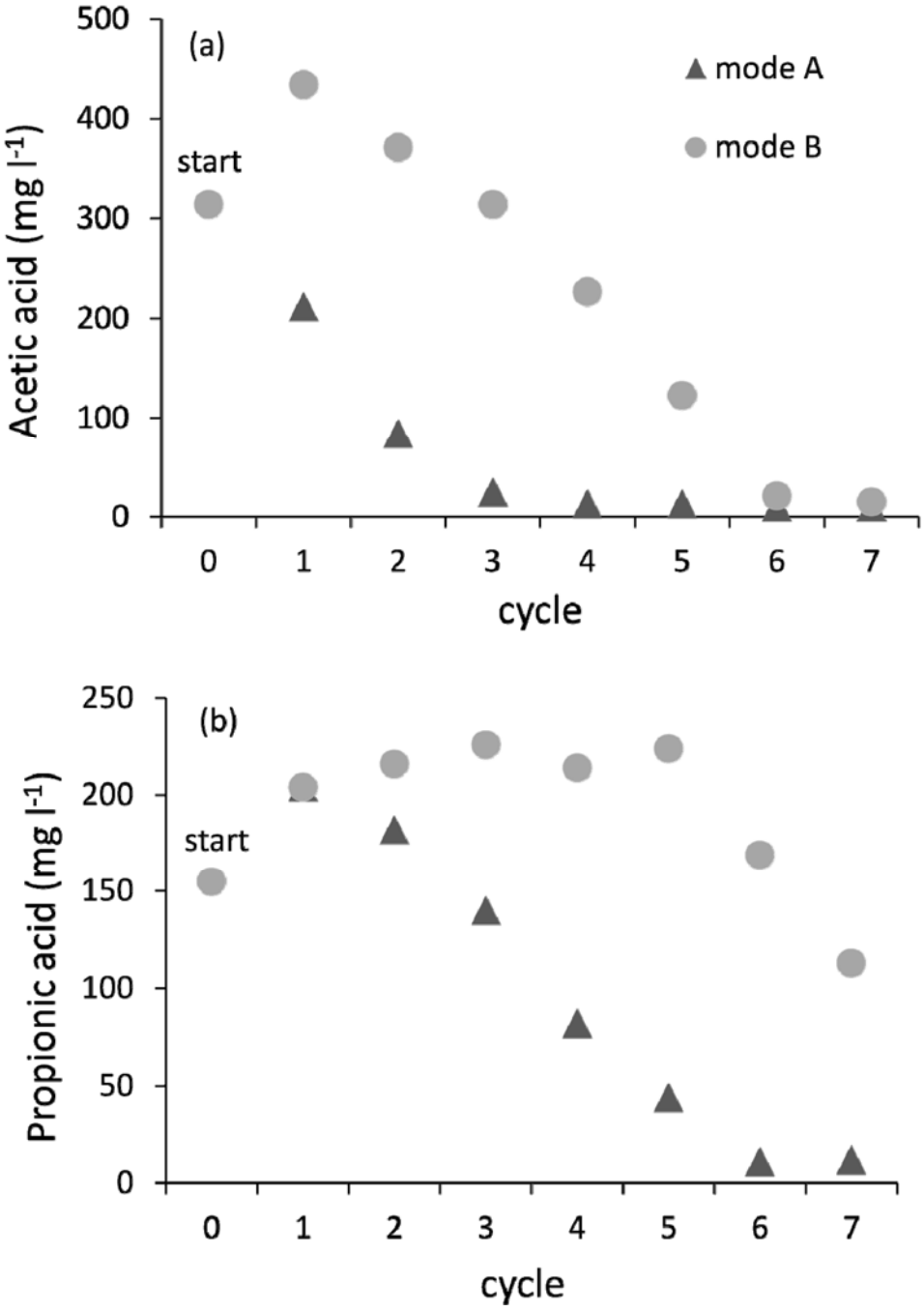


Fig. 3. Acetic acid (a) and propionic acid (b) degradation in a four-module tubular MFC fed with washdown water effluent and operating in Modes A and B.

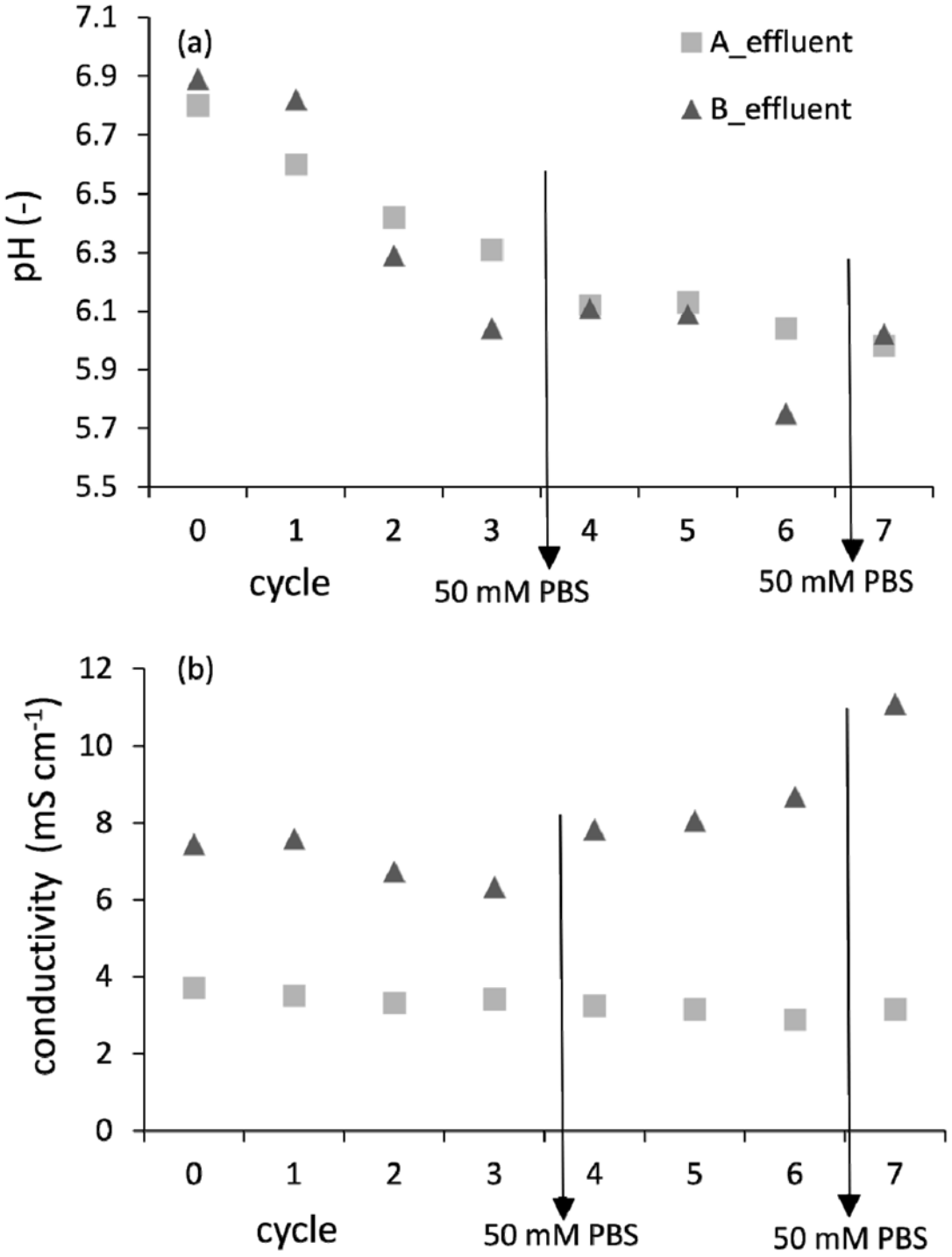


Fig. 4. pH (a) and conductivity changes (b) during 7 cycles of operation. The arrows indicate the addition of 50 mM PBS buffer, which was done during operation in Mode B

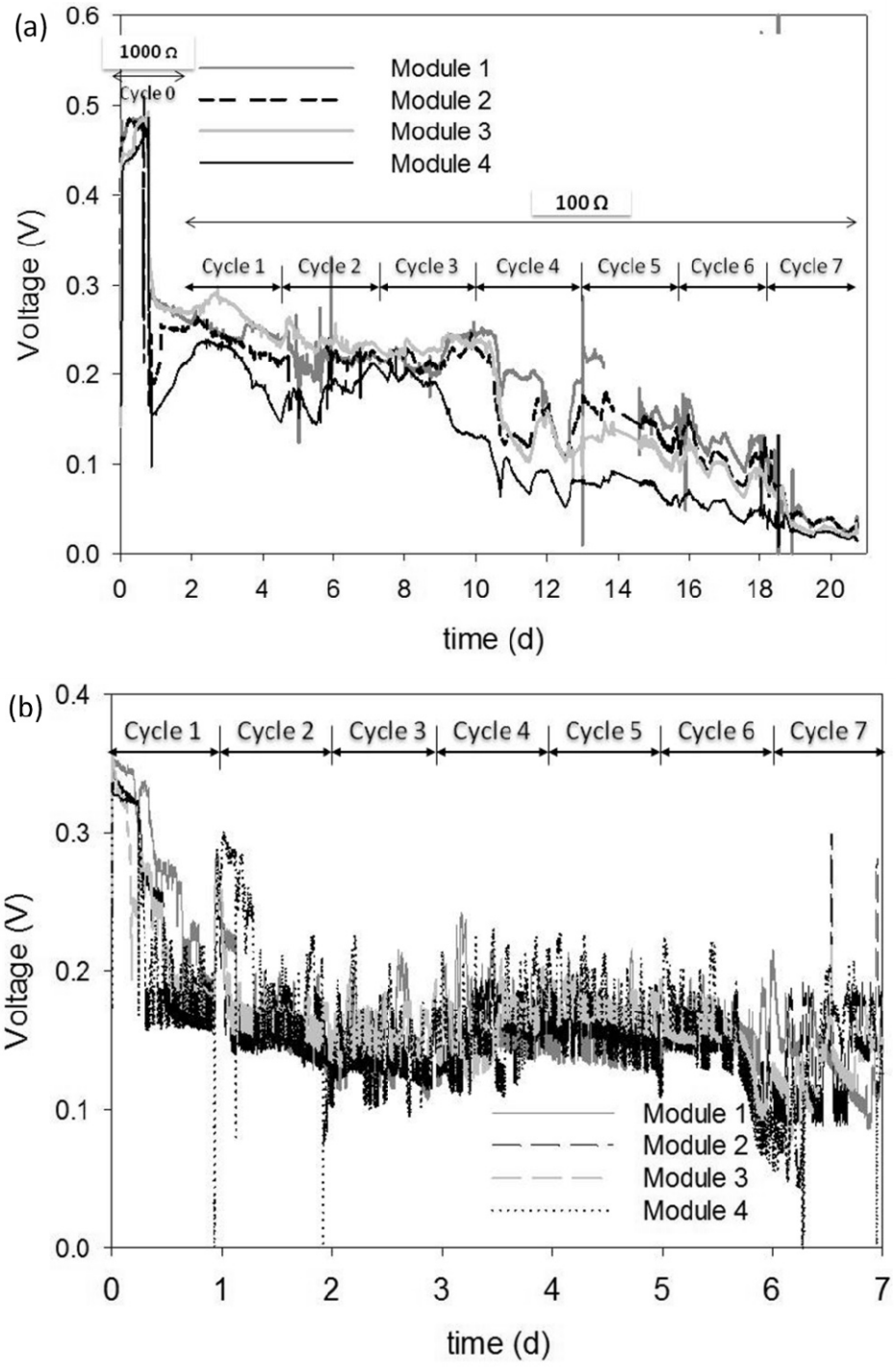


Fig. 5. Voltage development of each of the four modules in Mode A (a) and Mode B (b).

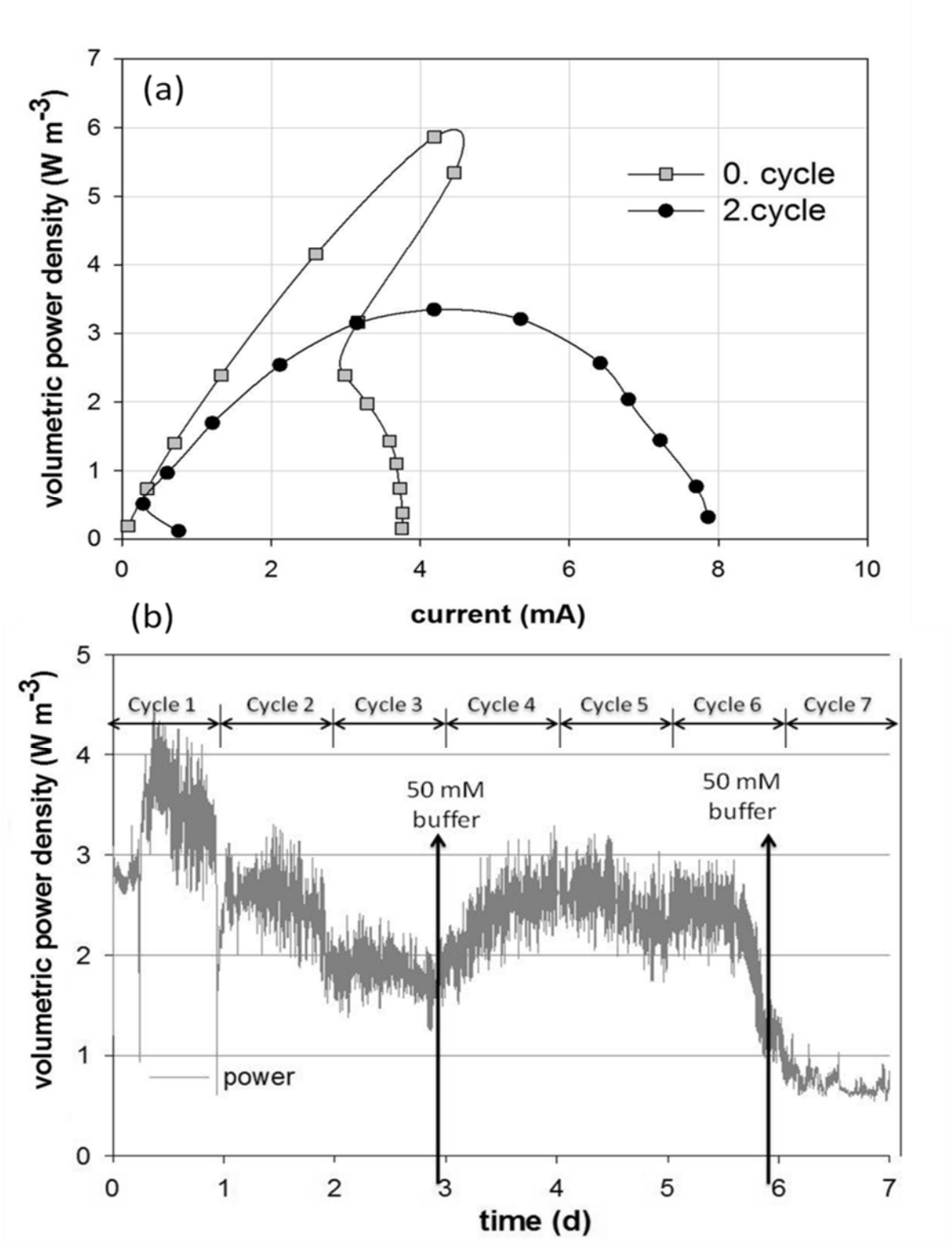


Fig. 6. Power curves measured during cycle 0 and 2 in Mode A (a), power and energy production in Mode B with MPPT control (b).

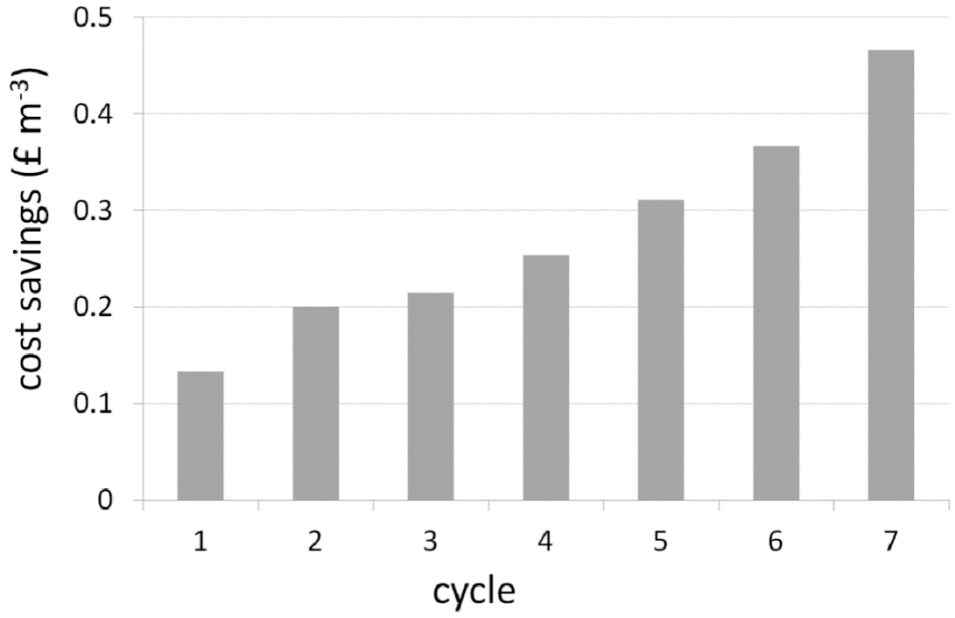


Fig. 7. Discharge cost savings after 7 cycles based on the reduction of sCOD.