

Supplementary materials

Bioelectrochemical greywater treatment for non-potable reuse and energy recovery

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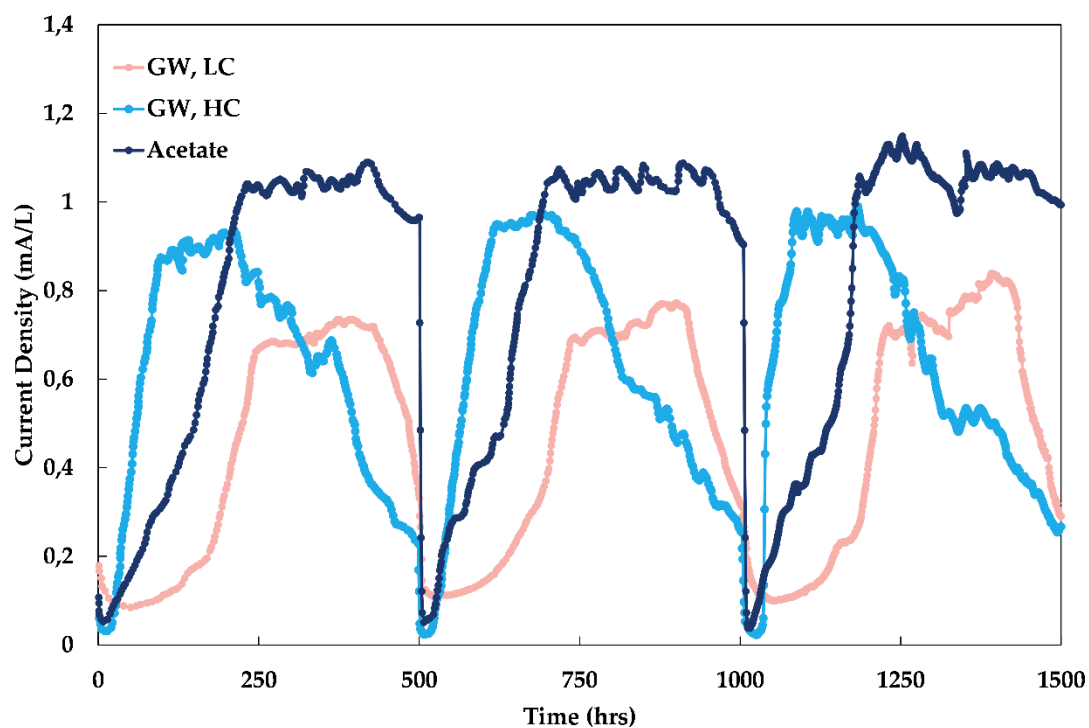


Figure S1. Current density trends recorded in the study. GW, LC: greywater, low conductivity; GW, HC: greywater, high conductivity. An acetate solution was used as analyte for the control reactor.

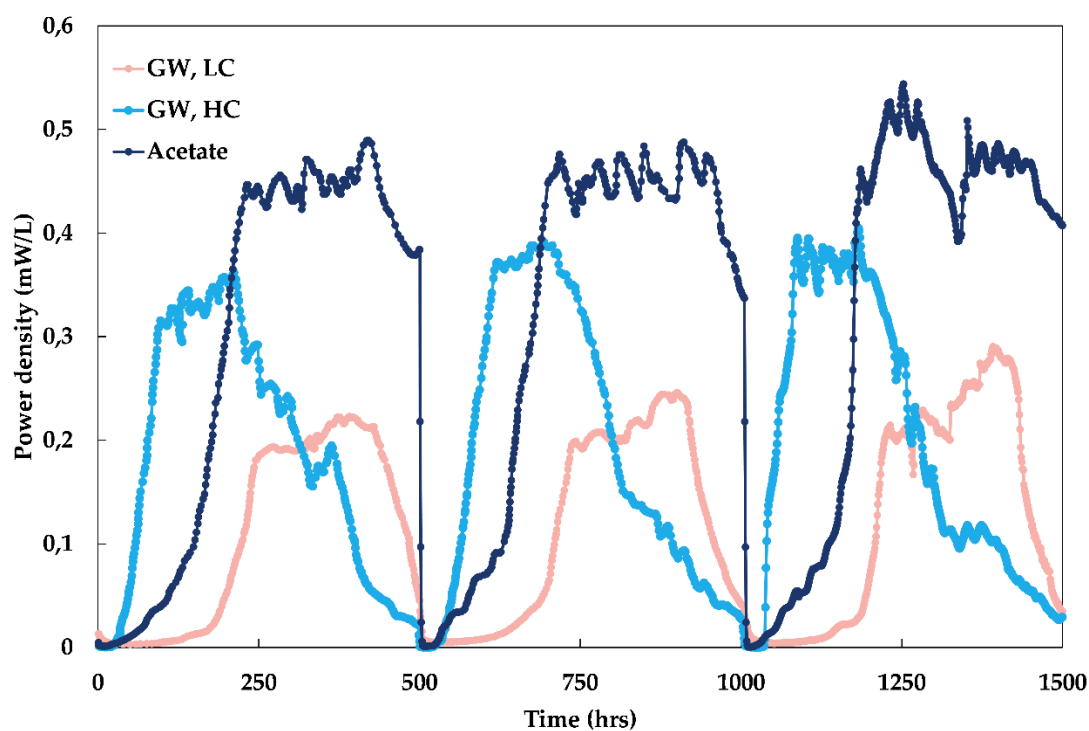


Figure S2. Power density trends recorded in the study. GW, LC: greywater, low conductivity; GW, HC: greywater, high conductivity. An acetate solution was used as analyte for the control reactor.

Table S1: Data for Figure 1.

Reference	COD [mg/L]	BOD ₅ [mg/L]	TN [mg/L]	NH ₄ ⁺ -N [mg/L]	NO ₃ - [mg/L]	TP [mg/L]	pH [-]	Conductivity [μS/cm]
Liu et al. 2005	130-322	99-212		0.6-1.0			5.8-6.3	
Lesjean and Gnirrs [1]	493		21	5.7		7.4		
Merz et al. [2]	109±33	59±13		11.8±4.2	0.0±0.0	1.6±0.5	7.6±0.4	645
Atasoy et al. [3]	245	90		1.3		7.3	7.1	401
Meuler et al. [4]	514	257	15.5			7.3	6.9	1820
Winward al. [5]	495	164						
	87	20						
Huelgas et al. [6]	540-1200		10 - 35	0.9-2.6	0.2	0.6-1.3		
	770-2050		21.9-43.5	0.3-2.7	0.9-5.3	2.9-14.5		
Jong et al. [7]	119-3740	23.5-392.4					7.02-7.86	
Hocaoglu & Orhon. [8]	350							
Hocaoglu & Orhon. [9]	330							
Santasmassas et al. [10]	302	138	23			3	7.7	910-1227-1652
Lamine et al. [11]	164±59	97.3±32.1		6.8±5.6	0.2±0.1			
Chai et al. [12]	≤400	≤250					6-8	
Hocaoglu et al. [13]	310	117		1.9		9.4	7.1	
Jabornig & Favero [14]	240±101	168±111	6.5	0.58±0.16			8.41±0.56	439
Bani-Melhem et al. [15]	356±181				1.10±0.58	1.64±0.37	6.9±0.2	
Ma D. et al. [16]	106-229		12.3-38.7					
Jabornig & Podmirseg. [17]	259±30.23		2.49±0.36	0.10±0.07			7.88±0.30	431
Ding et al.[18]	300			30		5	7.5-8.0	
	376.37±58.76	160.64±38.88		23.84±14.10	0.34±0.28			
Liberman et al. [19]	310.63±59.08	133.20±25.66		17.11±6.39	0.66±0.64			
	222.69±63.18	89.92±44.38		6.85±3.66	0.65±0.73			
Fountoulakis et al. [20]	466		33			1.3	7.1	600
Al Jayyousi [21]	263	109	9.6			2.58		
	371	121		1		0.36		
		181		0.9				
Holden and Ward [22]	256	110						
	40	33		10		0.4		
	146	80		10				
Sayers [23]				0.74		0.4		
Surendran and Wheatley [24]	168	96		0.8		2.4		
Leal et al. [25]	425±28	215±102	17.2±4.7	7.2±3.7		5.7±2.6		
	1583±382		47.78±27.06	16.35±6.78		9.86±8.48		
Eriksson et al. [26]	100-633	76-200		0.1-15	0.28-6.30		6.4-8.1	82-250
	12.8-725	48-380		0.04-11.3	0.4-2.0		8.1-10.0	190-1400
	3.8-1380	1040-1460		0.002-23	0.3-5.8		6.3-7.4	
	13-549	90-360		0.03-24.40	0.0-4.9		5.0-8.7	320-20000
Christova-Boal et al. [27]		76-200		0.1-15.0			6.4-8.1	82-250
		48-290		0.1-1.9			9.3-10.0	190-1400

Li et al. [28]	100-633	50-300				6.4-8.1	
	231-2950	48-472				7.1-10.0	
	26-2050	536-1460				5.9-7.4	
	100-700	47-466				6.3-8.1	
Al-Hamaiedeh and Bino [29]	92-2263	110-1240		0.44-0.93		6.9-7.8	157-200
	1712	942		0.68		7.2	183
Pidou et al. [30]	144	39		0.7	3.9	6.6-7.6	
	575	166		1	7.5	7.3-7.8	
	791	205		1.2	6.7		
Ramon et al. [31]	170	78		1.5-3.0	0.05-1.70	7.5	1317
March et al. [32]	39-441					7.3-8.0	
Eriksson et al. [33]		18-68		0.36-4.40		7.7-8.1	
		3		0.07-0.13		8.2-8.3	
Nghiem et al. [34]	3.8-1380	33-1460				5.0-10.9	
Houshia et al. [35]		126.6			38	6.1	1500
Hernandez-Leal et al. [36]	1476				0.1	7.24	74.4
Laak [37]	383	236		1.15	0.28	48.8	
Surendran and Wheatley [38]	433	252		0.53	0.34	45.5	
Almeida et al. [39]	298			0.3	6	13.3	
Jefferson et al. [40]	587	155	10.4			0.13	
Kariuki et al. [41]							
Faisal Anwar [42]						7.42	435
						9.56	707
						9.49	725
						9.62	749
						9.69	789
Bakare et al. [43]	2074.5	604.5				6.25	320
	1628.49	413.75				9.58	680
	1426.37	185.25				9.24	156
Chaillou et al. [44]	421	200	15.9			0.2	7.34
	145	81	6.2			0.25	7.64
	1001	670	15.6			1.12	7.52
	112	78	5.4			0.2	7.71
	315	170	4.3			0.35	7.67

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Lists of components in the shampoo and soap used for the preparation of the simulated greywater:

Shampoo Head & Shoulders™ menthol fresh: Water, Sodium Laureth Sulfate, Sodium Lauryl Sulfate, Cocamidopropyl Betaine, Glycol Distearate, Sodium Chloride, Parfum, Dimethiconol, Piroctone Olamine, Citric Acid, Menthol, Sodium Citrate, Dimethicone, Sodium Benzoate, Guar Hydroxypropyltrimonium Chloride, TEA-Dodecylbenzenesulfonate, Sodium Xylenesulfonate, Tetrasodium EDTA, Sodium Hydroxide, Trideceth-10, Hexyl Cinnamal, Linalool, Magnesium Nitrate, Methylchloroisothiazolinone, Triethylene Glycol, Propylene Glycol, Magnesium Chloride, CI42090, Methylisothiazolinone, CI17200.

Liquid Soap Aro™: Water, Sodium Laureth Sulfate, Sodium Chloride, Cocamide Dea, Cocamidopropyl Betaine, Glycerin, Parfum, Zinc Ricinoleate, Tetrahydroxypropyl Ethylendiamine, Laureth -3, Peg-40 Hydrogenated Castor Oil, Propylene Glycol, Tetrasodium Edta, Phenoxyethanol, Citric Acid, Magnesium Nitrate, Methylchloroisothiazolinone, Magnesium Chloride, Methylisothiazolinone, Limonene, Linalool, Hexyl Cinnamal, CI19140, CI14700.