

Additional file 1: Strains reported to produce biohydrogen without the possibility to calculate or retrieve quantitative results

Genus	Species	Strain	Temperature [°C]	pH	Substrate	Reference [†]
<i>Alcaligenes</i>	<i>eutrophus</i>	DSM 1348	30	6.0	gluconate	[90]
<i>Alcaligenes</i>	<i>eutrophus</i>	DSM 428	30	6.0	gluconate	[90]
<i>Alkalibacter</i>	<i>saccharofermentans</i>	DSM 14828	35	9.0	glucose	[91]
<i>Aminobacterium</i>	<i>colombiense</i>	DSM 12261	37	7.3	alanine	[92]
<i>Anaerobranca</i>	<i>horikoshii</i>	DSM 9786	57	8.5	yeast extract	[93]
<i>Anaerobranca</i>	<i>horikoshii</i>	DSM 9786	57	8.5	yeast extract/fumarate	[93]
<i>Anaerosinus</i>	<i>glycinii</i>	DSM 5192	30		glycerol	[94]
<i>Anaerovibrio</i>	<i>lipolytica</i>	L 1342			glycerol	[95]
<i>Anaerovibrio</i>	<i>lipolytica</i>	L 1641			glycerol	[95]
<i>Anaerovibrio</i>	<i>lipolytica</i>	L 1741			glycerol	[95]
<i>Bacillus</i>	<i>licheniformis</i>	JK1	38-40	6	wheat grain slurry	[96]
<i>Bacillus</i>	<i>licheniformis</i>	JK1	38-40	7	wheat grain slurry	[96]
<i>Bacillus</i>	<i>licheniformis</i>	JK1	38-40	8	wheat grain slurry	[96]
<i>Bacillus</i>	<i>subtilis</i>	VC2	37	7	wheat grains	[97]
<i>Bacillus</i>	<i>licheniformis</i>	JK1	37	7	wheat grains	[97]
<i>Bacteroides</i>	<i>eggerthii</i>	ATCC 27754	37	7.0	glucose	[98]
<i>Bacteroides</i>	<i>fragilis</i>	ATCC 25285	37	7.0	glucose	[98]
<i>Caldicellulosiruptor</i>	<i>acetigenus</i>	DSM 7040	65-68	7.0	glucose	[99]
<i>Caldicellulosiruptor</i>	<i>kristjanssonii</i>	DSM 12137	78	7.0	cellobiose	[100]
<i>Caldicellulosiruptor</i>	<i>owensensis</i>	ATCC 700167	75	7.5	glucose	[101]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70		glucose	[48]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70		glucose/filter paper	[48]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70		fructose	[48]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70		fructose/filter paper	[48]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	55		corn leaves	[48]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70		sucrose	[102]

<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.0	barley straw	[103]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.0	corn stalk	[103]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.0	barley grains	[103]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.0	corn grains	[103]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.0	sugar beet roots	[103]
<i>Caldicellulosiruptor</i>	<i>saccharolyticus</i>	DSM 8903	70	7.2	paper sludge hydrolysate	[104]
<i>Citrobacter</i>	<i>freundii</i>	TIT0101	30	7	glucose	[105]
<i>Clostridium</i>	<i>acetobutylicum</i>	ATCC 39236	34-46		Maltrin	[106]
<i>Clostridium</i>	<i>acidtolerans</i>	DSM 17425		6.0		[107]
<i>Clostridium</i>	<i>aldrichii</i>	ATCC 49358	35	7	cellobiose	[108]
<i>Clostridium</i>	<i>algoriphilum</i>	DSM 16153	6	6.8-7.2	glucose	[109]
<i>Clostridium</i>	<i>amygdalinum</i>	C9	37	7.5	xylan	[110]
<i>Clostridium</i>	<i>amygdalinum</i>	C9	37	7.5	starch	[110]
<i>Clostridium</i>	<i>beijerinckii</i>	ATCC 51743	37	6.0	anthraquinone-2.6-disulfonate	[111]
<i>Clostridium</i>	<i>beijerinckii</i>	ATCC 51743	37	6.0	humic acids	[111]
<i>Clostridium</i>	<i>beijerinckii</i>	DSM 791		6.0		[107]
<i>Clostridium</i>	<i>beijerinckii</i>	Fanp3	36	6.5	CMC	[82]
<i>Clostridium</i>	<i>beijerinckii</i>	Fanp3	36	6.5	soluble starch	[82]
<i>Clostridium</i>	<i>beijerinckii</i>	Fanp3	36	6.5	cellulose	[82]
<i>Clostridium</i>	<i>bifermentans</i>		35	6.2	waste sludge	[112]
<i>Clostridium</i>	<i>bifermentans</i>		35	6.4	wastewater sludge	[113]
<i>Clostridium</i>	<i>butyricum</i>	AS1.209	35	7.2	steam exploded corn straw	[114]
<i>Clostridium</i>	<i>butyricum</i>	AS1.209	35	7.2	raw corn straw	[114]
<i>Clostridium</i>	<i>butyricum</i>	CGS2	37	7.5	cellulose	[80]
<i>Clostridium</i>	<i>butyricum</i>	CGS5	37	7.5	sucrose	[115]
<i>Clostridium</i>	<i>butyricum</i>	CGS5	37	7.2	sucrose	[116]
<i>Clostridium</i>	<i>butyricum</i>	CGS5	37	7.5	xylan	[117]
<i>Clostridium</i>	<i>butyricum</i>	CGS5	37	7.5	sugarcane bagasse hydrolysate	[117]
<i>Clostridium</i>	<i>butyricum</i>	DSM 10702		6.0		[107]

<i>Clostridium</i>	<i>butyricum</i>	DSM 5431	33	7.0	glycerol	[118]
<i>Clostridium</i>	<i>butyricum</i>	IFO 3847	30	7.9	glutmate/lactate	[119]
<i>Clostridium</i>	<i>butyricum</i>	IFO 3847	37	7.7	glucose	[120]
<i>Clostridium</i>	<i>butyricum</i>	IFO 3847	37	6.2	wastewater	[121]
<i>Clostridium</i>	<i>butyricum</i>	IFO 13949	36	6.5	starch	[122]
<i>Clostridium</i>	<i>butyricum</i>	LMG 77-11	30	6.0	glucose	[123]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1212 t2	37	6.8	glycerol	[124]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1212 t2	37	6.8	glycerol/acetate	[124]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/acetate	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/butyrate	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/formate	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/fumarate	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/dihydroacetone	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/pyruvate	[125]
<i>Clostridium</i>	<i>butyricum</i>	LMG 1213 t1	37		mannitol/glucose	[125]
<i>Clostridium</i>	<i>butyricum</i>	NCIB 9576	37		starch	[126]
<i>Clostridium</i>	<i>butyricum</i>	NCIB 9576	37		algal biomass	[126]
<i>Clostridium</i>	<i>butyricum</i>	NCIB 9576	37		commercial <i>Chlorella</i> powder	[126]
<i>Clostridium</i>	<i>caminithermale</i>	DSM 15212	45	6.6	glucose	[127]
<i>Clostridium</i>	<i>cellobioparus</i>		38	7.4	glucose	[128]
<i>Clostridium</i>	<i>cellobioparus</i>		38	7.4	cellulose	[128]
<i>Clostridium</i>	<i>cellulolyticum</i>	ATCC 35319	34	7.8	cellulose	[129]
<i>Clostridium</i>	<i>diolis</i>	DSM 15410		6.0		[107]
<i>Clostridium</i>	<i>homopropionicum</i>	LuHBu1	37	7.2	pyruvate	[130]
<i>Clostridium</i>	<i>hungatei</i>	B3B	30	7.2	cellulose	[131]
<i>Clostridium</i>	<i>kluveri</i>		33	7.4-7.5	ethanol/acetate	[132]
<i>Clostridium</i>	<i>kluveri</i>		33	7.4-7.5	crotonate	[132]
<i>Clostridium</i>	<i>longisporum</i>	B6405	35-45		alfalfa cell walls	[133]

<i>Clostridium</i>	<i>longisporum</i>	OC4	35-45		alfalfa cell walls	[133]
<i>Clostridium</i>	<i>lortetti</i>	ATCC 35059	37	6.5	glucose	[134]
<i>Clostridium</i>	<i>ludense</i>	DSM 17049		6.0		[107]
<i>Clostridium</i>	<i>methoxybenzovorans</i>	DSM 12182	37	7.4	sucrose	[135]
<i>Clostridium</i>	<i>methylpentosum</i>	ATCC 43829	37	6.5	glucose	[136]
<i>Clostridium</i>	<i>pasteurianum</i>	CH1	37	7.5	cellulose	[80]
<i>Clostridium</i>	<i>pasteurianum</i>	CH4	37	7.5	cellulose	[80]
<i>Clostridium</i>	<i>pasteurianum</i>	CH5	37	7.5	cellulose	[80]
<i>Clostridium</i>	<i>pasteurianum</i>	CH7	37	7.5	cellulose	[80]
<i>Clostridium</i>	<i>pasteurianum</i>	DSM 525		6.0		[107]
<i>Clostridium</i>	<i>pasteurianum</i>	LMG 8285	37	6.8	glycerol	[124]
<i>Clostridium</i>	<i>pasteurianum</i>	LMG 8285	37	6.8	glycerol/acetate	[124]
<i>Clostridium</i>	<i>peptidivorans</i>	DSM 12505	37	7	isoleucine	[137]
<i>Clostridium</i>	<i>peptidivorans</i>	DSM 12505	37	7	serine	[137]
<i>Clostridium</i>	<i>peptidivorans</i>	DSM 12505	37	7	casamino acid	[137]
<i>Clostridium</i>	<i>phytofermentans</i>	ATCC 700394	37	7	cellulose	[138]
<i>Clostridium</i>	<i>phytofermentans</i>	ATCC 700394	37	7	cellobiose	[138]
<i>Clostridium</i>	<i>puniceum</i>	DSM 2619		6.0		[107]
<i>Clostridium</i>	<i>saccharoperbutylaceticum</i>	DSM 14923		6.0		[107]
<i>Clostridium</i>	sp.	A22	34	7.8	cellulose	[129]
<i>Clostridium</i>	sp.	BL-17		6.0		[107]
<i>Clostridium</i>	sp.	BL-20		6.0		[107]
<i>Clostridium</i>	sp.	BL-21		6.0		[107]
<i>Clostridium</i>	sp.	BL-22		6.0		[107]
<i>Clostridium</i>	sp.	BL-26		6.0		[107]
<i>Clostridium</i>	sp.	BL-28		6.0		[107]
<i>Clostridium</i>	sp.	BL-3		6.0		[107]
<i>Clostridium</i>	sp.	BL-3		7.2		[107]
<i>Clostridium</i>	sp.	BL-30		6.0		[107]

<i>Clostridium</i>	sp.	BL-8		6.0		[107]
<i>Clostridium</i>	sp.	EG3	37	6.8-7.2	glucose	[139]
<i>Clostridium</i>	<i>thermocellum</i>	AS-39	60	7.3	cellulose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	AS-39	60	7.3	cellobiose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	AS-39	60	7.3	cellulose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	AS-39	60	7.3	cellobiose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	DMS 123	55		tissue paper	[141]
<i>Clostridium</i>	<i>thermocellum</i>	DMS 123	55		tissue paper	[141]
<i>Clostridium</i>	<i>thermocellum</i>	DMS 123	55		tissue paper	[141]
<i>Clostridium</i>	<i>thermocellum</i>	JN4	60		corn stalk powder	[142]
<i>Clostridium</i>	<i>thermocellum</i>	JN4	60		corn cob powder	[142]
<i>Clostridium</i>	<i>thermocellum</i>	JN4	60		corn stalk powder	[142]
<i>Clostridium</i>	<i>thermocellum</i>	JN4	60		corn cob powder	[142]
<i>Clostridium</i>	<i>thermocellum</i>	JW20	60		cellobiose	[143]
<i>Clostridium</i>	<i>thermocellum</i>	LQRI	60		glucose	[144]
<i>Clostridium</i>	<i>thermocellum</i>	LQRI	60		cellobiose	[144]
<i>Clostridium</i>	<i>thermocellum</i>	LQRI	60	7.3	cellulose	[140, 144]
<i>Clostridium</i>	<i>thermocellum</i>	LQRI	60	7.3	cellobiose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	YS	60	7.3	cellulose	[140]
<i>Clostridium</i>	<i>thermocellum</i>	YS	60	7.3	cellobiose	[140]
<i>Clostridium</i>	<i>thermohydrosulfuricum</i>	E100-69	70		glucose	[145]
<i>Clostridium</i>	<i>thermohydrosulfuricum</i>	E39	65		xylose	[144]
<i>Clostridium</i>	<i>thermohydrosulfuricum</i>	E39	65		glucose	[144]
<i>Clostridium</i>	<i>thermohydrosulfuricum</i>	E39	65		cellobiose	[144]
<i>Clostridium</i>	<i>thermohydrosulfuricum</i>	JW102	70		glucose	[145]
<i>Clostridium</i>	<i>thiosulfatireducens</i>	DSM 13105		7.2		[107]
<i>Clostridium</i>	<i>tryobutyricum</i>	ATCC 25755	37	5.3	xylose	[146]
<i>Clostridium</i>	<i>tryobutyricum</i>	ATCC 25755	37	6.3	xylose	[146]
<i>Clostridium</i>	<i>xylanovorans</i>	DSM 12503	37		glucose	[147]

<i>Coprothermobacter</i>	<i>platensis</i>	DSM 11748	55	7.0	gelatin	[148]
<i>Coprothermobacter</i>	<i>proteolyticus</i>	DSM 5265	63	7.5	glucose	[148]
<i>Desulfovibrio</i>	<i>vulgaris</i>	Madison	30		pyruvate	[149]
<i>Desulfovibrio</i>	<i>vulgaris</i>	Madison	30		lactate	[149]
<i>Desulfovibrio</i>	<i>vulgaris</i>	H801	28		lactate	[150]
<i>Desulfovibrio</i>	<i>vulgaris</i>	H801	28		pyruvate	[150]
<i>Desulfovibrio</i>	<i>vulgaris</i>	Hyd100	28		lactate	[150]
<i>Desulfovibrio</i>	<i>vulgaris</i>	NCIMB 8303	28		lactate	[150]
<i>Dethiosulfovibrio</i>	<i>marinus</i>	DSM 12537	28	6.5-7	glucose	[151]
<i>Dethiosulfovibrio</i>	<i>russensis</i>	DSM 12538	28	6.5-7	glucose	[151]
<i>Escherichia</i>	<i>coli</i>	AN346	37	7.4	glucose	[152]
<i>Escherichia</i>	<i>coli</i>	AN817	37	7.4	glucose	[152]
<i>Escherichia</i>	<i>coli</i>	B1LK0	30	7.3	glucose	[153]
<i>Escherichia</i>	<i>coli</i>	BL21(DE3) Δ tonA	37		glucose	[154]
<i>Escherichia</i>	<i>coli</i>	BL21(DE3)pSynhox Δ H ₂ ase	37		glucose	[155]
<i>Escherichia</i>	<i>coli</i>	C600	30	7	glucose	[105]
<i>Escherichia</i>	<i>coli</i>	C600	30	7	glucose	[105]
<i>Escherichia</i>	<i>coli</i>	CECT 99	25		glucose	[156]
<i>Escherichia</i>	<i>coli</i>	communis	37	6	formate	[157]
<i>Escherichia</i>	<i>coli</i>	communis			glucose	[3, 4]
<i>Escherichia</i>	<i>coli</i>	communis			mannitol	[3]
<i>Escherichia</i>	<i>coli</i>	communis			fructose	[3]
<i>Escherichia</i>	<i>coli</i>	communis			galactose	[3]
<i>Escherichia</i>	<i>coli</i>	communis			arabinose	[3]
<i>Escherichia</i>	<i>coli</i>	communis			glucose/formate	[4]
<i>Escherichia</i>	<i>coli</i>	DADE	30	7.3	glucose	[153]
<i>Escherichia</i>	<i>coli</i>	FM420	37	7.4	glucose	[152]
<i>Escherichia</i>	<i>coli</i>	FM911	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	FM911	37	5.5	glucose/formate	[158]

<i>Escherichia</i>	<i>coli</i>	FRAG115	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	FRAG115	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	FRAG115	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	FRAG90		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	FRAG90		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	FRAG90	37	7.4	glucose	[152]
<i>Escherichia</i>	<i>coli</i>	FTD701	30	7.3	glucose	[153]
<i>Escherichia</i>	<i>coli</i>	HD700	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	HD700	37	5.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	HD700	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	HD700	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	HD701	30	7.3	glucose	[153]
<i>Escherichia</i>	<i>coli</i>	HD705	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	HD705	37	5.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	HD705	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	HD705	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	HD706		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	HD706		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	HD707		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	HD707		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	HK-8(pCBH4)	30	7	glucose	[105]
<i>Escherichia</i>	<i>coli</i>	HK-8(pCBH4)	30	7	glucose	[105]
<i>Escherichia</i>	<i>coli</i>	JRG3615		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3615		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3615	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3615	37	5.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3615	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3615	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3618		6.5		[159]

<i>Escherichia</i>	<i>coli</i>	JRG3618		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3618		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3621		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3621		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3621		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	JRG3933	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3933	37	5.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3933	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	JRG3933	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	K12 (lambda)	37	7.3-7.4	glucose	[160]
<i>Escherichia</i>	<i>coli</i>	K12 (lambda)	37	7.3-7.4	maltose	[160]
<i>Escherichia</i>	<i>coli</i>	MC4100		6.5		[159]
<i>Escherichia</i>	<i>coli</i>	MC4100		7.5		[159]
<i>Escherichia</i>	<i>coli</i>	MC4100	37	7.4	glucose	[152]
<i>Escherichia</i>	<i>coli</i>	MC4100	30	7.3	glucose	[153]
<i>Escherichia</i>	<i>coli</i>	MC4100	37	7.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	MC4100	37	5.5	glucose	[158]
<i>Escherichia</i>	<i>coli</i>	MC4100	37	7.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	MC4100	37	5.5	glucose/formate	[158]
<i>Escherichia</i>	<i>coli</i>	S13	37	7.2	formate	[161]
<i>Escherichia</i>	<i>coli</i>	S13	37	7.2	formate	[161]
<i>Escherichia</i>	<i>coli</i>	S13	37	7.2	glucose	[161]
<i>Escherichia</i>	<i>coli</i>	TG1	37			[67]
<i>Escherichia</i>	<i>coli</i>	TK2242	37	7.4	glucose	[162]
<i>Enterobacter</i>	<i>aerogenes</i>	HO-39	36	6.5	starch	[122]
<i>Ethanoligenens</i>	<i>harbinense</i>	JCM12961	35	4.5-5.0	glucose	[163]
<i>Ethanoligenens</i>	<i>harbinense</i>	X-29	35	4.5-5.0	glucose	[163]
<i>Fervidobacterium</i>	<i>gondwanense</i>	ACM 5017	65-68	6.8	glucose	[164]
<i>Fervidobacterium</i>	<i>pennavorans</i>	DSM 9078	65			[165]

<i>Geobacter</i>	<i>hydrogenophilus</i>	H-2	30		acetate	[166]
<i>Geobacter</i>	<i>hydrogenophilus</i>	H-2	30		butyrate	[166]
<i>Geobacter</i>	<i>hydrogenophilus</i>	H-2	30		benzoate	[166]
<i>Geobacter</i>	<i>hydrogenophilus</i>	H-2	30		ethanol	[166]
<i>Geobacter</i>	<i>metallireducens</i>	GS15	30		acetate	[166]
<i>Gluconacetobacter</i>	<i>diazotrophicus</i>	ATCC 49037	30	7.4	glucose	[167]
<i>Gluconacetobacter</i>	<i>diazotrophicus</i>	T2	30	7.4	glucose	[167]
<i>Hafnia</i>	<i>alvei</i>	CECT 400	39		glucose	[156]
<i>Haloanaerobium</i>	<i>hydrogeniformans</i>		33	11		[168]
<i>Haloanaerobium</i>	<i>lacusroseus</i>	DSM 10165	40	7.0	glucose	[169]
<i>Halobaculum</i>	<i>saccharolytica</i>	DSM 7379	40	7.0	glucose	[170]
<i>Halonatronum</i>	<i>saccharophilum</i>	DSM 13868			glucose	[91]
<i>Halotheothrix</i>	<i>orenia</i>	H168	60	6.5-7.0	glucose	[171]
<i>Ilyobacter</i>	<i>insuetus</i>	DSM 6831	30	6.5-8.0	quinic acid or shikimic acid	[172]
<i>Klebsiella</i>	<i>oxytoca</i>	HP1	37.5	7.0	hydrolyzed bagasse	[173]
<i>Klebsiella</i>	<i>oxytoca</i>	HP1 Δ ahdE	37.5	7.0	hydrolyzed bagasse	[173]
<i>Klebsiella</i>	<i>pneumoniae</i>	ECU-15			glucose	[174]
<i>Pantoea</i>	sp.	C9	30	7.4	glucose	[167]
<i>Pelobacter</i>	<i>carbinolicus</i>	DSM 2380	35	6.5-7.2	butanediol	[175]
<i>Pelobacter</i>	<i>carbinolicus</i>	DSM 2380	35	6.5-7.2	ethanol	[175]
<i>Petrogona</i>	<i>miotherma</i>	DSM 10691	55		DSM 718	[165]
<i>Pseudomonas</i>	sp.	GZ1	35		wastewater sludge	[176]
<i>Roseburia</i>	<i>intestinalis</i>	XB6B4	37			[177]
<i>Ruminococcus</i>	<i>albus</i>	43-1	39		cellulose	[178]
<i>Ruminococcus</i>	<i>albus</i>	46-1	39		cellulose	[178]
<i>Ruminococcus</i>	<i>albus</i>	56-2	39		cellulose	[178]
<i>Ruminococcus</i>	<i>albus</i>	69	39		cellulose	[178]
<i>Ruminococcus</i>	<i>flavefaciens</i>	61-1	39		cellulose	[178]
<i>Ruminococcus</i>	<i>flavefaciens</i>	S1-2	39		cellulose	[178]

<i>Ruminococcus</i>	<i>flavefaciens</i>	S1-y	39		cellulose	[178]
<i>Ruminococcus</i>	sp.	19.08.6C	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	20	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	21.09.6A	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	21.09.6B	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	21.09.6E	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	21.09.6F	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	21.09.6G	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	22.08.6A	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	22.08.6B	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	22.08.6F	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	7	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	c94	38		cellobiose	[179]
<i>Ruminococcus</i>	sp.	FD1	38		cellobiose	[179]
<i>Sarcina</i>	<i>ventriculi</i>	JK		2-9	glucose	[180]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	glutamate	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	ketoglutarate	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	histidine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	arginine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	ornithine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	glucose	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	fructose	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	alanine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	serine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	pyruvate	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	glycerol	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	citrate	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	isoleucine	[181]
<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	valine	[181]

<i>Selenomonas</i>	<i>acidaminovorans</i>	DSM 6589	55	6.5-8.1	leucine	[181]
<i>Selenomonas</i>	<i>ruminantium</i>	GA192	37		glucose	[182]
<i>Selenomonas</i>	<i>ruminantium</i>	HD4	37		glucose	[183]
<i>Shewanella</i>	<i>alga</i>	BRY	20		lactate	[166]
<i>Shewanella</i>	<i>palmitatis</i>	SDBY	37		lactate	[166]
<i>Spirochaeta</i>	<i>aurantia</i>	J1	30	7.5	maltose	[184]
<i>Syntrophothermus</i>	<i>lipocalidus</i>		55	6.2	butyrate	[92]
<i>Tepidibacter</i>	<i>thalassicus</i>	DSM 15285	50	6.5-6.8	glucose	[185]
<i>Thermoanaerobacter</i>	<i>brockii</i>	DSM 1457	70	7.5	glucose	[186, 187]
<i>Thermoanaerobacter</i>	<i>brockii</i>	HDT1	65		glucose	[186]
<i>Thermoanaerobacter</i>	<i>brockii</i>	HDT6	65		glucose	[186]
<i>Thermoanaerobacter</i>	<i>brockii</i>	DSM 9801	55-60	7.3	glucose	[188]
<i>Thermoanaerobacter</i>	<i>siderophilus</i>	DSM 12299	69-71	6.3-6.5	glucose	[189]
<i>Thermoanaerobacter</i>	<i>thermohydrosulfuricus</i>	DSM 567	67-69	6.9-7.5		[187]
<i>Thermoanaerobacterium</i>	<i>aciditolerans</i>	DSM 16487	55	5.7	sucrose	[190]
<i>Thermoanaerobacterium</i>	<i>polysaccharolyticum</i>	DSM 13641	65-68	6.8-7.0	glucose	[191]
<i>Thermoanaerobacterium</i>	<i>saccharolyticum</i>	DSM 7060	60	6.0	glucose	[187]
<i>Thermoanaerobacterium</i>	<i>saccharolyticum</i>	DSM 7060	60	6.0	xylan	[187]
<i>Thermoanaerobacterium</i>	<i>saccharolyticum</i>	DSM 7060	60	6.0	rhamnose	[187]
<i>Thermoanaerobacterium</i>	<i>thermosulfurigenes</i>	DSM 2229	60	5.5-6.5	glucose	[187]
<i>Thermoanaerobacterium</i>	<i>xylanolyticum</i>	DSM 7097	60	6.0		[187]
<i>Thermoanaerobacterium</i>	<i>zeae</i>	DSM 13642	65-70	3.9-7.9	glucose	[191]
<i>Thermoanaerobium</i>	<i>brockii</i>	HTD4	65		glucose	[192]
<i>Thermoanaerobium</i>	<i>brockii</i>	HTD4	65		starch	[192]
<i>Thermoanaerobium</i>	<i>brockii</i>	HTD4	65		acetone	[192]
<i>Thermoanaerobium</i>	<i>brockii</i>	HTD4	65		glucose/acetone	[192]
<i>Thermoanaerobium</i>	<i>brockii</i>	HTD4	65		pyruvate/acetone	[192]
<i>Thermobrachium</i>	<i>celere</i>	DSM 8682	67	8.2	glucose	[193]
<i>Thermobrachium</i>	<i>celere</i>	DSM 8682	67	8.2	yeast extract	[194]

<i>Thermobrachium</i>	<i>celere</i>	DSM 8682	67	8.2	tryptone	[194]
<i>Thermobrachium</i>	<i>celere</i>	DSM 8682	67	8.2	glucose/yeast extract	[194]
<i>Thermobrachium</i>	<i>celere</i>	DSM 8682	67	8.2	glucose/tryptone	[194]
<i>Thermococcus</i>	sp.	ES-1	81		yeast extract/tryptone	[195]
<i>Thermodesulfobacterium</i>	<i>commune</i>	YSRA	60		pyruvate	[149]
<i>Thermodesulfobacterium</i>	<i>commune</i>	YSRA	60		lactate	[149]
<i>Thermosipho</i>	<i>africanus</i>	DSM 5309	75			[165]
<i>Thermotoga</i>	<i>elfii</i>	DSM 9442	65	8	glucose	[165, 196]
<i>Thermotoga</i>	<i>elfii</i>	DSM 9442	65	8	xylose/glucose	[196]
<i>Thermotoga</i>	<i>elfii</i>	DSM 9442	65	7.2	paper sludge hydrolysate	[104]
<i>Thermotoga</i>	<i>lettingae</i>	DSM 14385	65	7.0	glucose	[197]
<i>Thermotoga</i>	<i>maritima</i>	DSM 3109	80	6.5-7.0	starch	[198]
<i>Thermotoga</i>	<i>maritima</i>	DSM 3109	80	6.5-7.0	cellulose	[198]
<i>Thermotoga</i>	<i>maritima</i>	DSM 3109	80	6.5-7.0	carboxymethyl cellulose	[198]
<i>Thermotoga</i>	<i>neapolitana</i>	ATCC 49049	70			[165]
<i>Thermotoga</i>	<i>neapolitana</i>	DSM 4359	75	6.5-7.0	starch	[198]
<i>Thermotoga</i>	<i>neapolitana</i>	DSM 4359	75	6.5-7.0	cellulose	[198]
<i>Thermotoga</i>	<i>neapolitana</i>	DSM 4359	75	6.5-7.0	carboxymethyl cellulose	[198]
<i>Thermovenabulum</i>	<i>ferrorganovorum</i>	DSM 14006	63-65	6.7-6.9	melibiose	[199]
<i>Vibrio</i>	<i>aerogenes</i>	ATCC 700797	30	7	glucose	[200]
		66-1	39		cellulose	[178]
		B2	37		microcrystalline cellulose	[201]
		C3	37		microcrystalline cellulose	[201]
		FMHBu1	28	7	pyruvate	[130]
		Mfc52	30	6.7	glucose	[202]
<i>Escherichia</i>	<i>coli</i>		37	5.5	glucose	[203]
<i>Citrobacter</i>	<i>freundii</i>	ATCC 6750				
<i>Escherichia</i>	<i>coli</i>		37	5.5	filter paper	[203]
<i>Citrobacter</i>	<i>freundii</i>	ATCC 6750				
<i>Clostridium</i>	<i>thermocellum</i>	JN4	60			
<i>Thermoanaerobacterium</i>	<i>thermosaccharolyticum</i>	GD17			0.5% (w/v) corn stalk powder	[142]

<i>Clostridium</i> <i>Thermoanaerobacterium</i>	<i>thermocellum</i> <i>thermosaccharolyticum</i>	JN4 GD17	60		0.5% (w/v) corn cob powder	[142]
<i>Clostridium</i> <i>Thermoanaerobacterium</i>	<i>thermocellum</i> <i>thermosaccharolyticum</i>	JN4 GD17	60		1% (w/v) corn stalk powder	[142]
<i>Clostridium</i> <i>Thermoanaerobacterium</i>	<i>thermocellum</i> <i>thermosaccharolyticum</i>	JN4 GD17	60		1% (w/v) corn cob powder	[142]
<i>Clostridium</i> <i>Clostridium</i>	<i>thermocellum</i> <i>thermopalmarium</i>	DSM 1237 DSM 5974	55	7.0	cellulose	[204]
<i>Clostridium</i> <i>Enterobacter</i>	<i>butyricum</i> <i>aerogenes</i>	IFO 13949 HO-39	36	6.5	starch, argon gas	[122]
<i>Clostridium</i> <i>Enterobacter</i>	<i>butyricum</i> <i>aerogenes</i>	IFO 13949 HO-39	36	6.5	starch	[122]

* for reference please refer to manuscript