water

MDPI

Supplementary Materials

Table S1. Investigated cultivation substrates and their origins.

Sources of carbon	Sources of nitrogen	Sources of carbon and nitrogen
Cellulose [MONDI, Poland] Microcrystalline cellulose [CHEMPUR, Poland] Glucose [POCH, Poland] Molasses [KSC* S.A., Poland] Sucrose [POCH, Poland] Soluble starch [POCH, Poland] Insoluble starch [POCH, Poland] Larch sawdust [SGGW**, Poland] Pine sawdust [SGGW, Poland] Poplar sawdust [SGGW, Poland]	Ammonium chloride [CHEMPUR, Poland] Ammonium nitrate [CHEMPUR, Poland]	Urea [POCH, Poland] CSL [TTCarp, Poland] DDGS [Bioagra, Poland] Whey [MLEKOVITA, Poland] Yeast extract [BIOCORP, France] Soya peptone [BIOCORP, France]

Designations: * National Copany of Sugar Refinery; ** Warsaw University of Life Sciences

Table S2. Percentage content of culture medium components prepared as part of the screening test.

L.p.	Component	x_{mC} [%]	x_{mN} [%]	Data source for calculations
1	Cellulose	44.44	0	Chemical formula
2	Microcrystalline cellulose	44.44	0	Chemical formula
3	Glucose	40.00	0	Chemical formula
4	Molasses	21.05	0	Product specification
5	Sucrose	42.11	0	Chemical formula
6	Soluble starch	44.44	0	Chemical formula
7	Insoluble starch	44.44	0	Chemical formula
8	Larch sawdust	50	1	Product specification
9	Pine sawdust			
10	Poplar sawdust			
11	Ammonium chloride	0	26.17	Chemical formula
12	Ammonium nitrate	0	35	Chemical formula
13	Urea	20.00	46.67	Chemical formula
14	CSL	37.77	6.49	Product specification
15	DDGS	23.87	4.85	Product specification
16	Whey	35.49	1.89	Product specification
17	Yeast extract	39.19	11.20	Product specification
18	Soy peptone	41.65	9.90	Product specification

Table S3. Values of fitting parameters in the mathematical models for growth curves of *A. mellea*, *P. chrysosporium*, and *P. ostreatus* in CSL and DDGS one-component media and corresponding determination coefficients.

Model	Medium	Species	Fitting parameters					R^2
			K_S or K_1 [%]	μ_m [d^{-1}]	K_I or K_2 [%]	*m*	*n*	
Monod $\mu = \mu_m \cdot C_S / (K_S + C_S)$	CSL	*Am*	3.7(12)	0.54(17)	n/a	n/a	n/a	0.690
		Pc	136.9(99)	2.88(21)	n/a	n/a	n/a	**0.928***
		Po	18.2(29)	1.83(29)	n/a	n/a	n/a	0.845
	DDGS	*Am*	17.1(20)	1.48(17)	n/a	n/a	n/a	0.887
		Pc	6.9(45)	0.61(40)	n/a	n/a	n/a	0.355
		Po	17.9(58)	1.68(55)	n/a	n/a	n/a	0.678
Tessier $\mu = \mu_m \cdot [1 - \exp(- C_S / K_S)]$	CSL	*Am*	6.31(67)	0.503(53)	n/a	n/a	n/a	0.895
		Pc	89.4(34)	1.807(68)	n/a	n/a	n/a	**0.963**
		Po	18.26(95)	1.498(77)	n/a	n/a	n/a	**0.948**
	DDGS	*Am*	20.4(13)	1.259(75)	n/a	n/a	n/a	**0.941**
		Pc	9.1(26)	0.56(16)	n/a	n/a	n/a	0.722
		Po	19.4(29)	1.41(21)	n/a	n/a	n/a	0.853
Moser $\mu = \mu_m \cdot (C_S)^m / [K_S + (C_S)^m]$ $m > 0$	CSL	*Am*	20.5(28)	0.505(68)	n/a	1.97(27)	n/a	0.866
		Pc	130.7(47)	2.228(81)	n/a	1.092(40)	n/a	**0.964**
		Po	304(13)	1.497(60)	n/a	2.223(89)	n/a	**0.960**
	DDGS	*Am*	12.42(54)	2.431(11)	n/a	0.580(25)	n/a	**0.957**
		Pc	$8.71(16) \cdot 10^7$	0.57(11)	n/a	8.4(1.6)	n/a	0.817
		Po	60.2(98)	1.48(24)	n/a	1.54(0.25)	n/a	0.838
Haldane-Andrews $\mu = \mu_m \cdot C_S / [K_S + C_S + (C_S)^2 / K_I]$	CSL	*Am*	9.31(0.90)	0.800(77)	151(15)	n/a	n/a	**0.904**
		Pc	140.7(96)	2.94(21)	$8.80(61) \cdot 10^{15}$	n/a	n/a	**0.932**
		Po	37.6(32)	3.03(26)	142.026(12)	n/a	n/a	**0.917**

	DDGS	*Am*	17.2(20)	1.49(17)	2.06(24)·10^{15}	n/a	n/a	0.888
		Pc	23.4(38)	1.43(23)	53.7(86)	n/a	n/a	0.841
		Po	38.7(91)	2.82(66)	125(30)	n/a	n/a	0.767
Aiba $\mu = \mu_m \cdot C_S \cdot \exp(- C_S / K_I) / (K_S + C_S)$	CSL	*Am*	3.28(46)·10^3	132(19)	42.7(60)	n/a	n/a	0.861
		Pc	2.68(22)·10^3	53.1(40)	224(17)	n/a	n/a	**0.925**
		Po	1404(88)	96.8(61)	64.7(41)	n/a	n/a	**0.938**
	DDGS	*Am*	17.1(19)	1.48(17)	1.(12)·10^{17}	n/a	n/a	0.890
		Pc	154(25)	8.5(14)	42.5(69)	n/a	n/a	0.838
		Po	526(89)	34.4(59)	68(12)	n/a	n/a	0.831
Edwards $\mu = \mu_m \cdot [\exp(- C_S / K_I) - \exp(- C_S / K_S)]$	CSL	*Am*	6.3(13)	0.53(11)	4.71(94)·10^{15}	n/a	n/a	0.801
		Pc	89.4(67)	1.81(14)	4.50(34)·10^{17}	n/a	n/a	**0.926**
		Po	18.3(19)	1.50(16)	1.03(11)·10^5	n/a	n/a	0.899
	DDGS	*Am*	16.1(27)	1.19(20)	2.76(47)· 10^{18}	n/a	n/a	0.833
		Pc	9.2(44)	0.56(27)	8.5(40)·10^3	n/a	n/a	0.531
		Po	19.4(53)	1.41(39)	4.3(12)·10^5	n/a	n/a	0.728
Luong $\mu = \mu_m \cdot C_S \cdot (1 - C_S / K_2)^m / (K_1 + C_S)$	CLS	*Am*	9.48(93)·10^3	0.819(80)	4.63(46)·10^3	23.7(24)	n/a	**0.902**
		Pc	2.011(34)·10^{10}	2.7432(46) ·10^8	2.3718(40) ·10^3	0.17621(30)	n/a	**0.999**
		Po	5.82(32)·10^3	394(22)	3.99(22)·10^3	62.1(34)	n/a	**0.946**
	DDGS	*Am*	17.1(22)	1.48(19)	4.63(58)·10^3	0	n/a	0.876
		Pc	5.80(19)·10^9	3.74(12) ·10^8	7.32(24) ·10^9	0.17621(30)	n/a	0.804
		Po	5.82(98)·10^3	379(64)	3.99(67)·10^3	64(11)	n/a	0.833
Yamane $\mu = \mu_m \cdot C_S / [K_S + C_S + (C_S / K_I)^m]$	CSL	*Am*	10.33(95)	0.877(81)	10.9(10)	1.96(18)	n/a	**0.909**
		Pc	163(12)	2.86(21)	135.2(98)	60.0(44)	n/a	**0.928**
		Po	1.167(11)·10^5	6479(59)	0.1739(16)	2.015(19)	n/a	**0.991**
	DDGS	*Am*	16.6(19)	1.47(17)	79.3(88)	17.7(20)	n/a	0.889
		Pc	3.040(99)·10^5	1.242(41)	0.3021(98)·10^3	2.631(86)	n/a	**0.968**

		Po	206.7(38)	8.81(17)	81.1(15)	29.35(54)	n/a	**0.982**
Han-Levenspiel	CSL	*Am*	26.1(28)	1.50(17)	$3.66(40)\cdot10^{5}$	393(43)	0.0459(50)	0.893
$\mu = \mu_m \cdot C_S \cdot (1 - C_S / K_S)^m / [C_S + K_1 \cdot (1 - C_S / K_2)^n]$		*Pc*	47.4(33)	1.117(78)	$1.97(14)\cdot10^{5}$	-757(53)	670(47)	**0.931**
		Po	54.3(2.1)	1.801(68)	$1.413(53)\cdot10^{6}$	397(15)	$1.058(40)\cdot10^{4}$	**0.963**
		Am	2.094(55)	0.575(16)	1887(50)	-42.0(11)	-93.8(25)	**0.974**
	DDGS	*Pc*	$7.584(46)\cdot10^{4}$	1.117(68)	$2525(16)\cdot10^{4}$	323.2(20)	$2185(14)\cdot10^{4}$	**0.994**
		Po	2.88(11)·104	1161(41)	1613(57)	101.3(36)	97.4(35)	**0.965**

Abbreviations: Am – *A. mellea*; C_S – substrate concentration [% nominal]; CSL - corn steep liquor; DDGS - dried distillers grains with solubles; K_1,

K_2 – constants; K_I – inhibition constant; K_S – saturation constant [% nominal]; m, n – exponents; μ - specific growth rate [d^{-1}]; μm – constant [d^{-1}];

Pch – *P. chrysosporium*; Po – *P. ostreatus*. Designations: *Determination coefficients higher than 0.9 are in bold.

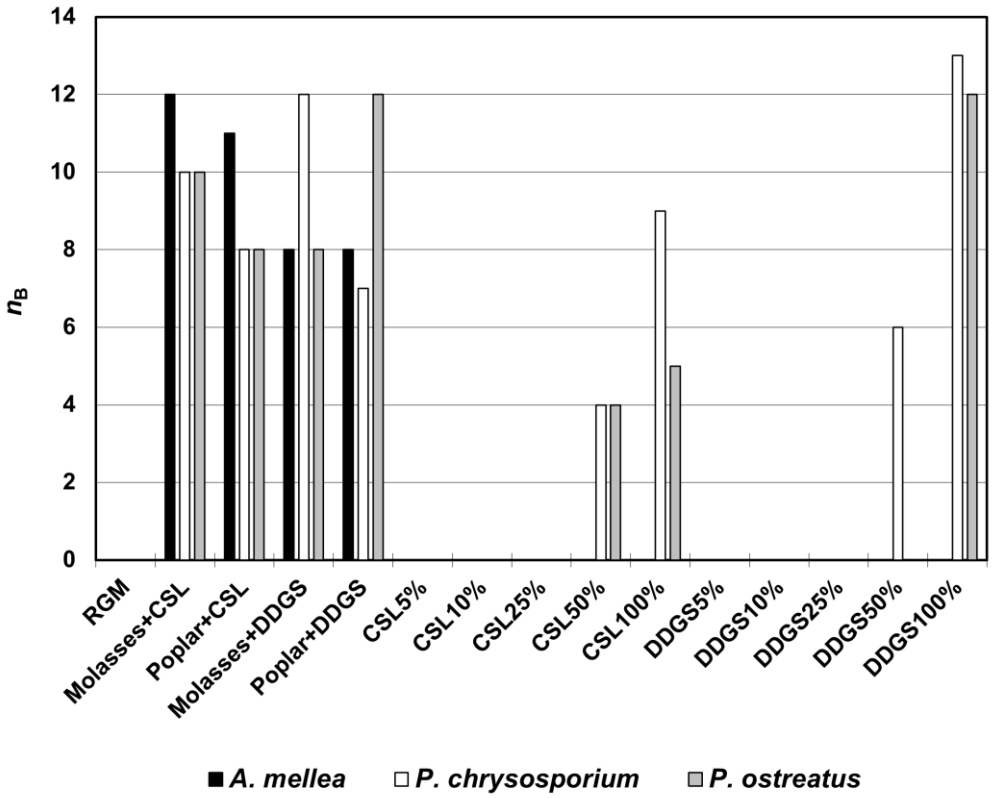


Figure S1. The n_B values for the media used to determine the growth curves. RGM, CLS 5-25%, and DDGS 5-25% were not significantly better than other media and are not visible. Abbreviations: CSL – corn steep liquor; DDGS – dried distillers grains with solubles; RGM – reference growing medium.