Molecules Journal

SUPPLEMENTARY MATERIAL

Açai Seeds (*Euterpe oleracea* Mart) are Agroindustrial Wastes with High Potential to Produce Low-Cost Substrates after Acid Hydrolysis

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Supplementary Table 1. Total reducing sugars (TRS) and Combined Severity Factor (CSF) obtained during the Central Composite Rotational Design (CCRD) runs for the acid hydrolysis of açaí seeds using phosporic acid (H_3PO_4).

	Level of independent variables			Dependent variable	
				H_3PO_4	
Runs	X_1	X_2	X_3	**CSF**	**TSR (g/L)**
1	1 (-1)	30 (-1)	5 (-1)	0.96	2.93
2	4 (+1)	30 (-1)	5 (-1)	1.12	3.93
3	1 (-1)	90 (+1)	5 (-1)	1.43	4.59
4	4 (+1)	90 (+1)	5 (-1)	1.59	7.13
5	1 (-1)	30 (-1)	20 (+1)	0.96	11.92
6	4 (+1)	30 (-1)	20 (+1)	1.12	15.32
7	1 (-1)	90 (+1)	20 (+1)	1.43	22.13
8	4 (+1)	90 (+1)	20 (+1)	1.59	33.97
9	0 (-1.68)	60 (0)	12.5 (0)	NC	9.62
10	5 (+1.68)	60 (0)	12.5 (0)	1.48	30.07
11	2.5 (0)	9.54 (-1.68)	12.5 (0)	0.55	11.04
12	2.5 (0)	110 (+1.68)	12.5 (0)	1.61	22.77
13	2.5 (0)	60 (0)	0.1 (-1.68)	1.35	< LOD
14	2.5 (0)	60 (0)	25 (+1.68)	1.35	29.51
15	2.5 (0)	60 (0)	12.5 (0)	1.35	20.00
16	2.5 (0)	60 (0)	12.5 (0)	1.35	22.19
17	2.5 (0)	60 (0)	12.5 (0)	1.35	21.29

X_1: Acid concentration (%, w/v). X_2: Hydrolysis time (min). X_3: Solids concentration (%, w/v). < LOD: below the limite of detection. NC: Combined Severity factor not calculated given the 0% diluted acid concentration.

Supplementary Table 2. t and p value at 90% confidence for the studied parameters in the experimental design.

Factor	t value (TRS)	p value (TRS)	t value (HMF)	p value (HMF)	t value (Solubilized mas)	p value (Solubilized mas)
Mean/Interaction	171.6399	0.000034	92.8866	0.000116	82.2134	0.000148
X_1 (Linear)	87.2050	0.000131	176.2357	0.000032	43.2951	0.000533
X_1 (Quadratic)	-39.2657	0.000648	13.7007	0.005285	**-1.2569**	**0.335682**
X_2 (Linear)	79.0235	0.000160	155.0748	0.000042	22.6748	0.001939
X_2(Quadratic)	-19.8918	0.002518	32.6532	0.000937	**1.4774**	**0.277625**
X_3(Linear)	160.2199	0.000039	118.1064	0.000072	14.9800	0.004427
X_3(Quadratic)	-24.3874	0.001677	-15.4188	0.004180	-22.5319	0.001964
X_1 by X_2	14.9660	0.004435	114.0549	0.000077	5.3606	0.033082
X_1 by X_3	44.1388	0.000513	105.7494	0.000089	2.4573	0.133285
X2 by X3	44.9127	0.000495	80.6162	0.000154	3.0580	0.092360

Supplementary Table 3 – ANOVA (10% significance) for the adequacy of the quadratic response surface models to determine the contents of total reducing sugars (TRS), hydroxymethylfurfural (HMF) and solubilized mass (SM) after acid hydrolysis of dried açai seeds with H_2SO_4.

Variation source	Sum of squares	Degrees of freedom	Mean Square	F_{value}	R^2
TRS (g/L) = $47.83+11.47X_1-5.73X_1^2+10.37X_2-2.88X_2^2+21.10X_3-3.58X_3^2+2.56X_1X_2+7.55X_1X_3+7.69X_2X_3$					
Regression	10659.8	9	1184.4	20.11	0.96
Residue	412.2	7	58.9		
Lack of fit	411.71	5	82.343	351.09	
Pure error	0.47	2	0.235		
Total	11072.00	16			
HMF (g/L) = $69.81+62.51X_1+5.39X_1^2+54.90X_2+12.75X_2^2+41.96X_3-6.11X_3^2+52.66X_1X_2+48.33X_1X_3+37.22X_2X_3$					
Regression	173051.3	9	19227.70	6.92	0.89
Residue	19452.5	7	2779.07		
Lack of fit	19449.1	5	9.8863	2280.57	
Pure error	3.4	2	2.9883		
Total	192503.8	16			
SM (%) = $36.08+9.14X_1+4.77X_2+3.17X_3-5.32X_3^2+1.47X_1X_2+0.84X_2X_3$					
Regression	1955.5	9	217.27	1.93	0.71
Residue	786.4	7	112.34		
Lack of fit	785.2	5	157.0	260.15	
Pure error	1.207	2	0.604		
Total	2741.8	16			

$F_{0.1;\,9;\,7} = 2.72$; $F_{0.1;\,5;\,2} = 9.29$ (F = Tabulated value from Fisher test). The mathematical models were considered significant ($p \leq 0.1$) when the regression F_{values} were three times higher than $F_{tabulated}$ and as predicted when the lack of fit F_{values} were lower than the $F_{tabulated}$ value.

Supplementary Figure 1 – Profiles for the predicted values and desirability function used to predict the contents of total reducing sugars (TRS), hydroxymethyl furfural (HMF) and solubilized mass at the chosen best condition for the acid hydrolysis of dried açai seeds: with 3.5% H_2SO_4 + 25% solids during 70 min in autoclave.