

**Table S1.** Two-way ANOVA analysis for the furanic compounds at  $\alpha = 0.05$ .

Test Component	Parameter	DF	Sum of Squares	Mean square	F-value	p-value	Summary
HMF	Temperature	1	16645.752	16645.752	3.743	0.071	At 0.05 level, the population means of Temperature are <b>not</b> significantly different
	Concentration	3	116004.433	38668.144	8.694	0.001	At 0.05 level, the population means of Temperature are significantly different
	Interaction	3	41151.767	13717.256	3.084	0.057	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant
	Model	7	173801.952	24828.850	5.582	0.002	
	Error	16	71162.345	4447.647			
	Corrected Total	23	244964.297				
Furfural	Temperature	1	11939.536	11939.536	7.036	0.017	At 0.05 level, the population means of Temperature are significantly different
	Concentration	3	96903.150	32301.050	19.036	1.58E-05	At 0.05 level, the population means of Concentration are significantly different
	Interaction	3	26173.312	8724.437	5.142	0.011	At 0.05 level, the interaction between Temperature and Concentration is significant
	Model	7	135015.999	19288.000	11.367	3.67E-05	
	Error	16	27148.898	1696.806			
	Corrected Total	23	162164.897				
Furfuryl alcohol	Temperature	1	54856.578	54856.578	30.426	4.70E-05	At 0.05 level, the population means of Temperature are significantly different
	Concentration	3	69027.373	23009.124	12.762	1.63E-04	At 0.05 level, the population means of Concentration are significantly different
	Interaction	3	15379.896	5126.632	2.843	0.071	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant
	Model	7	139263.847	19894.835	11.035	4.42E-05	
	Error	16	28847.476	1802.967			
	Corrected Total	23	168111.322				

when  $p\text{-value} > \alpha$ , do not reject  $H_0$ . when  $p\text{-value} < \alpha$ , reject  $H_0$ .

**Table S2.** Two-way ANOVA analysis for the acidic compounds at  $\alpha = 0.05$ .

Test Component	Parameter	DF	Sum of Squares	Mean square	F-value	p-value	Summary
Furoic acid	Temperature	1	79837.284	79837.284	125.271	2.28E-08	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	66466.525	22155.508	34.764	9.68E-07	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	1952.958	650.986	1.021	0.413	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant.
	Model	7	169875.631	24267.947	38.078	4.66E-08	
	Error	14	8922.445	637.317			
	Corrected Total	21	178798.075				
Glycolic acid	Temperature	1	9525.427	9525.427	6.037	0.027	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	88900.678	29633.559	18.781	2.44E-05	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	19634.095	6544.698	4.148	0.025	At 0.05 level, the interaction between Temperature and Concentration is significant.
	Model	7	119384.999	17055.000	10.809	7.24E-05	
	Error	15	23667.397	1577.826			
	Corrected Total	22	143052.396				
Levulinic acid	Temperature	1	3647.190	3647.190	1.255	0.280	At 0.05 level, the population means of Temperature are <b>not</b> significantly different.
	Concentration	3	39561.508	13187.169	4.536	0.019	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	27892.110	9297.370	3.198	0.054	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant.
	Model	7	72924.234	10417.748	3.583	0.018	
	Error	15	43607.336	2907.156			
	Corrected Total	22	116531.570				

when  $p\text{-value} > \alpha$ , do not reject  $H_0$ . when  $p\text{-value} < \alpha$ , reject  $H_0$ .

**Table S3.** Two-way ANOVA analysis for the phenolic compounds at  $\alpha = 0.05$ .

Test Component	Parameter	DF	Sum of Squares	Mean square	F-value	p-value	Summary
Syringaldehyde	Temperature	1	25334.977	25334.977	4.569	0.049	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	50851.194	16950.398	3.057	0.061	At 0.05 level, the population means of Concentration are <b>not</b> significantly different.
	Interaction	3	2131.473	710.491	0.128	0.942	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant.
	Model	7	83425.170	11917.882	2.149	0.101	
	Error	15	83167.597	5544.506			
	Corrected Total	22	166592.768				
Vanillin	Temperature	1	125309.949	125309.949	46.883	7.97E-06	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	381035.992	127011.997	47.520	1.38E-07	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	39898.862	13299.621	4.976	0.015	At 0.05 level, the interaction between Temperature and Concentration is significant.
	Model	7	565606.774	80800.968	30.231	2.08E-07	
	Error	14	37419.226	2672.802			
	Corrected Total	21	603026.000				
Phenol	Temperature	1	152045.245	152045.245	50.560	2.47E-06	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	378002.746	126000.915	41.899	8.37E-08	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	335699.595	111899.865	37.210	1.92E-07	At 0.05 level, the interaction between Temperature and Concentration is significant.
	Model	7	865747.586	123678.227	41.127	4.65E-09	
	Error	16	48115.922	3007.245			
	Corrected Total	23	913863.508				

when  $p\text{-value} > \alpha$ , do not reject  $H_0$ . when  $p\text{-value} < \alpha$ , reject  $H_0$ .

**Table S4.** Two-way ANOVA analysis for the process-wastewater at  $\alpha = 0.05$ .

Test Component	Parameter	DF	Sum of Squares	Mean square	F-value	p-value	Summary
Process-wastewater	Temperature	1	10131.647	10131.647	9.210	0.008	At 0.05 level, the population means of Temperature are significantly different.
	Concentration	3	67126.135	22375.378	20.341	1.52E-05	At 0.05 level, the population means of Concentration are significantly different.
	Interaction	3	6994.642	2331.547	2.120	0.141	At 0.05 level, the interaction between Temperature and Concentration is <b>not</b> significant.
	Model	7	86876.637	12410.948	11.283	5.62E-05	
	Error	15	16500.218	1100.015			
	Corrected Total	22	103376.855				

when  $p\text{-value} > \alpha$ , do not reject  $H_0$ . when  $p\text{-value} < \alpha$ , reject  $H_0$ .