



Supplementary Information

# Fitting biochars and activated carbons from residues of the olive oil industry as supports of Fe-catalysts for the heterogeneous Fenton-like treatment of simulated olive mill wastewater

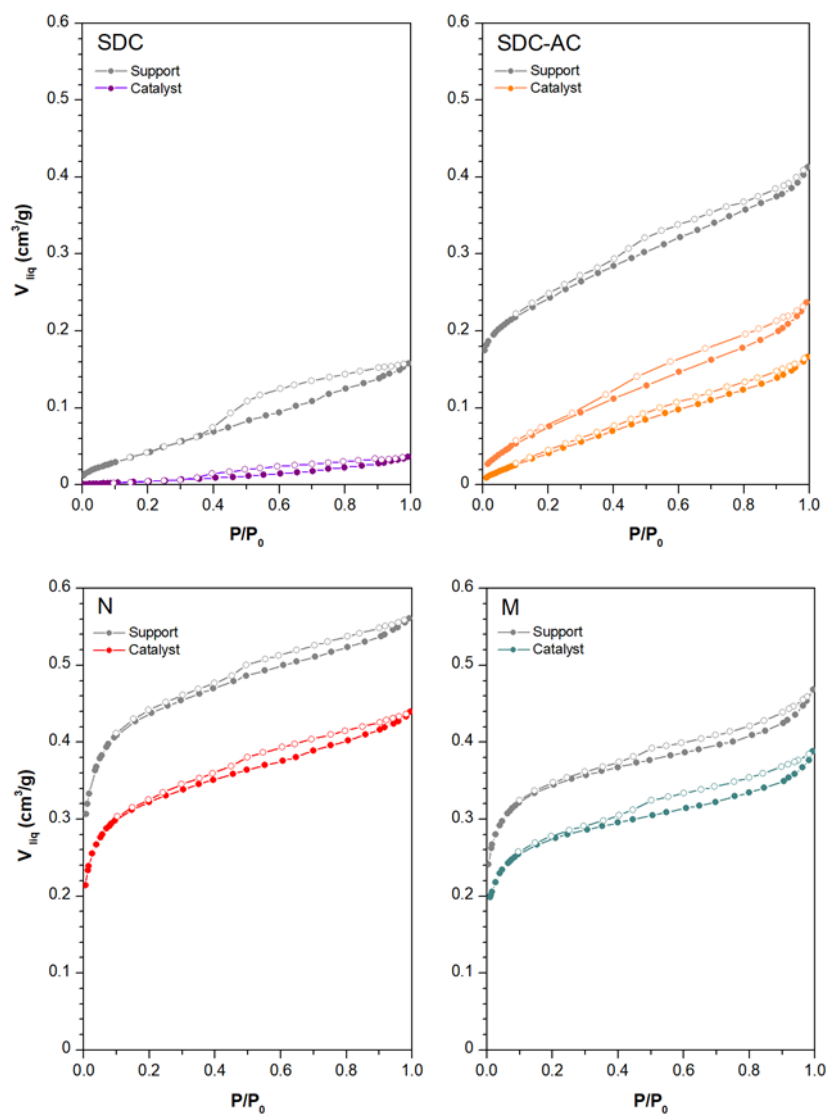
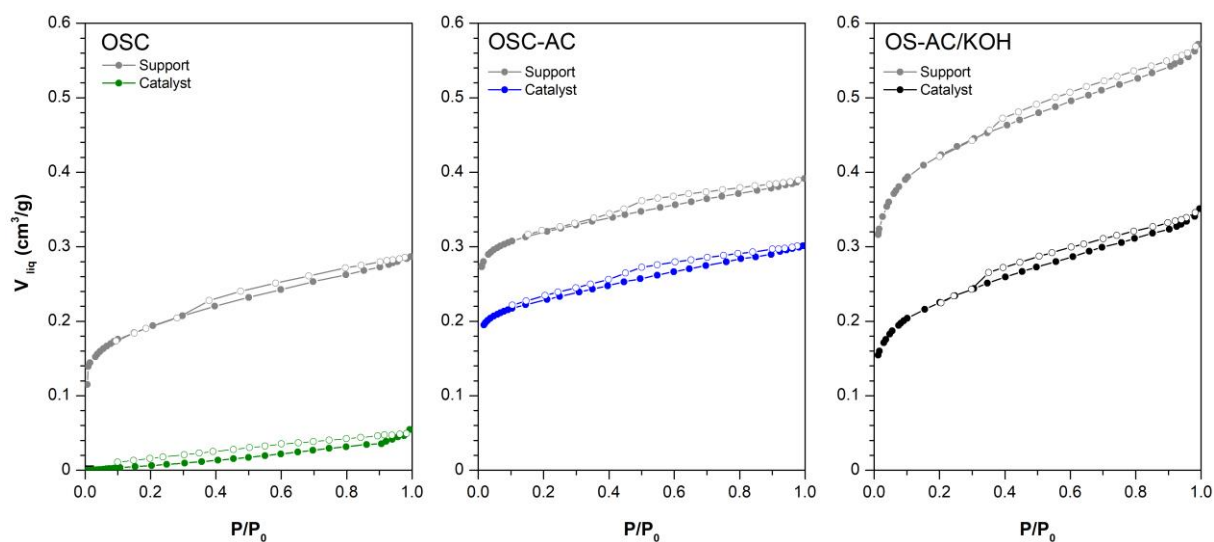
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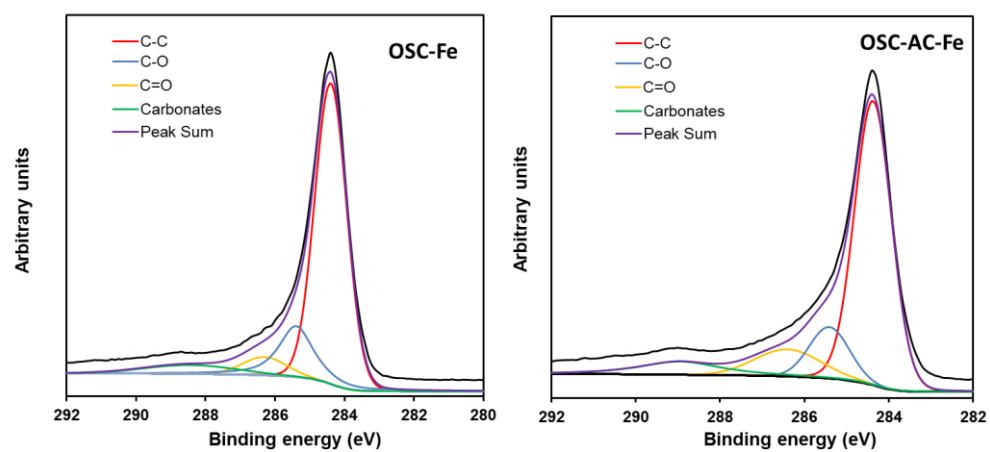
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Table S1. Chemical characteristics of the selected phenolic compounds.

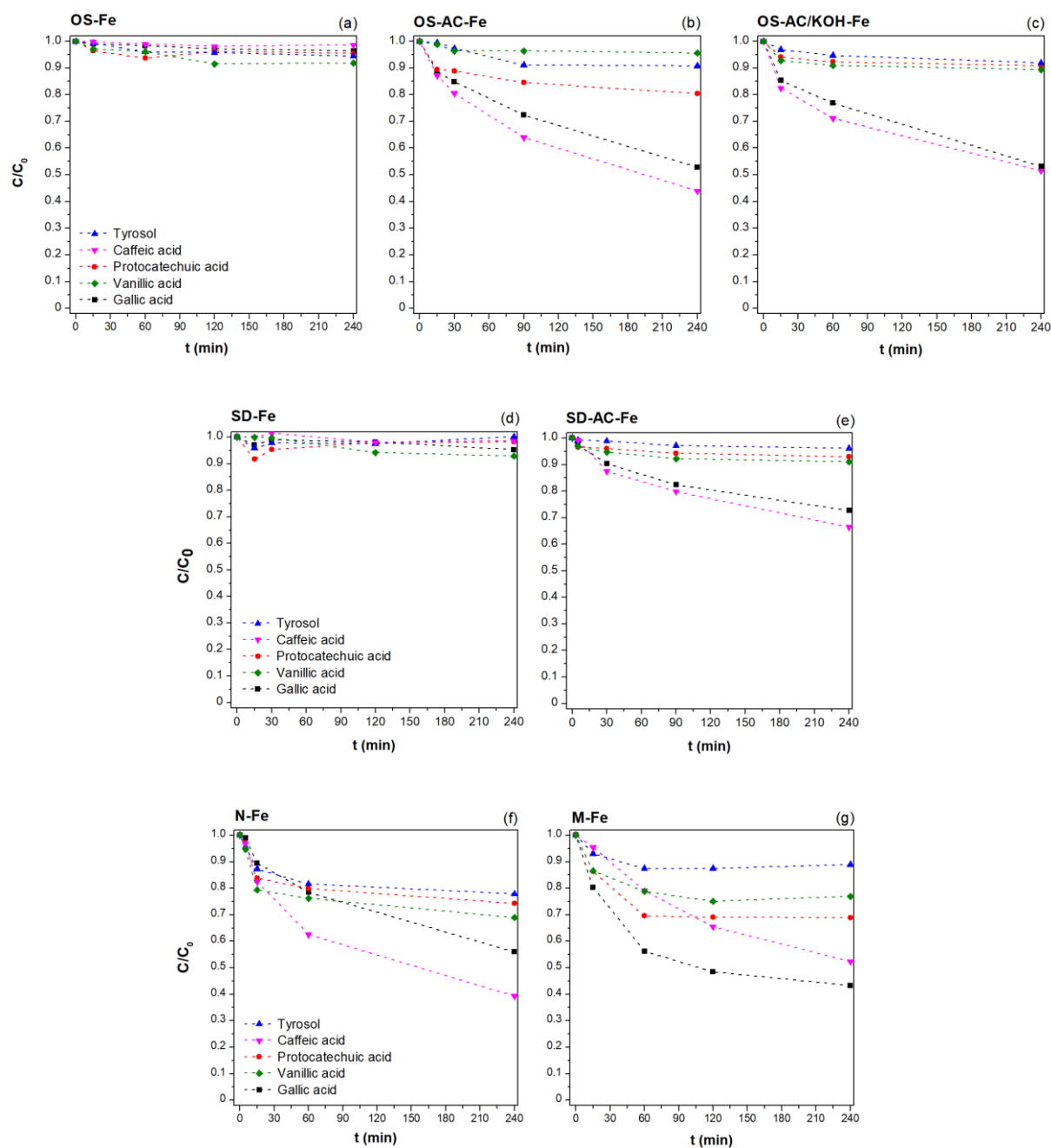
Name	Chemical structure	Molecular formula	Molecular weight (g/mol)	pKa (at 25 °C)	Solubility in water (g/L)
Tyrosol		C <sub>8</sub> H <sub>10</sub> O <sub>2</sub>	138.16	10.20	25.3
Caffeic acid		C <sub>9</sub> H <sub>8</sub> O <sub>4</sub>	180.16	4.62	1.6
Gallic acid		C <sub>7</sub> H <sub>6</sub> O <sub>5</sub>	170.12	4.40	11.5
Protocatechuic acid		C <sub>7</sub> H <sub>6</sub> O <sub>4</sub>	154.12	4.48	18.2
Vanillic acid		C <sub>8</sub> H <sub>8</sub> O <sub>4</sub>	168.14	4.16	1.5



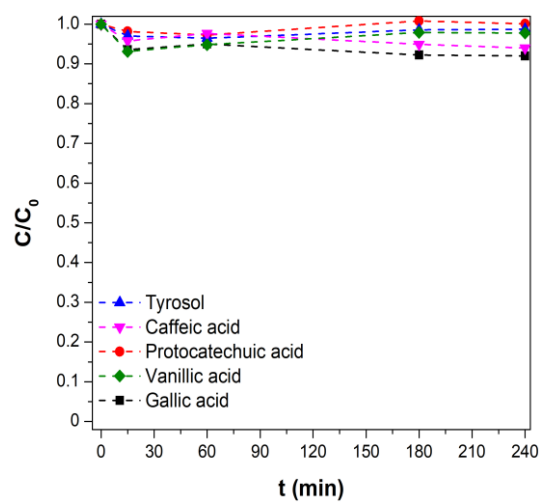
**Figure S1.** N<sub>2</sub> adsorption/desorption isotherms for the supports and corresponding Fe-catalysts tested.



**Figure S2.** C1s spectral region of OSC-Fe and OSC-AC-Fe catalysts.

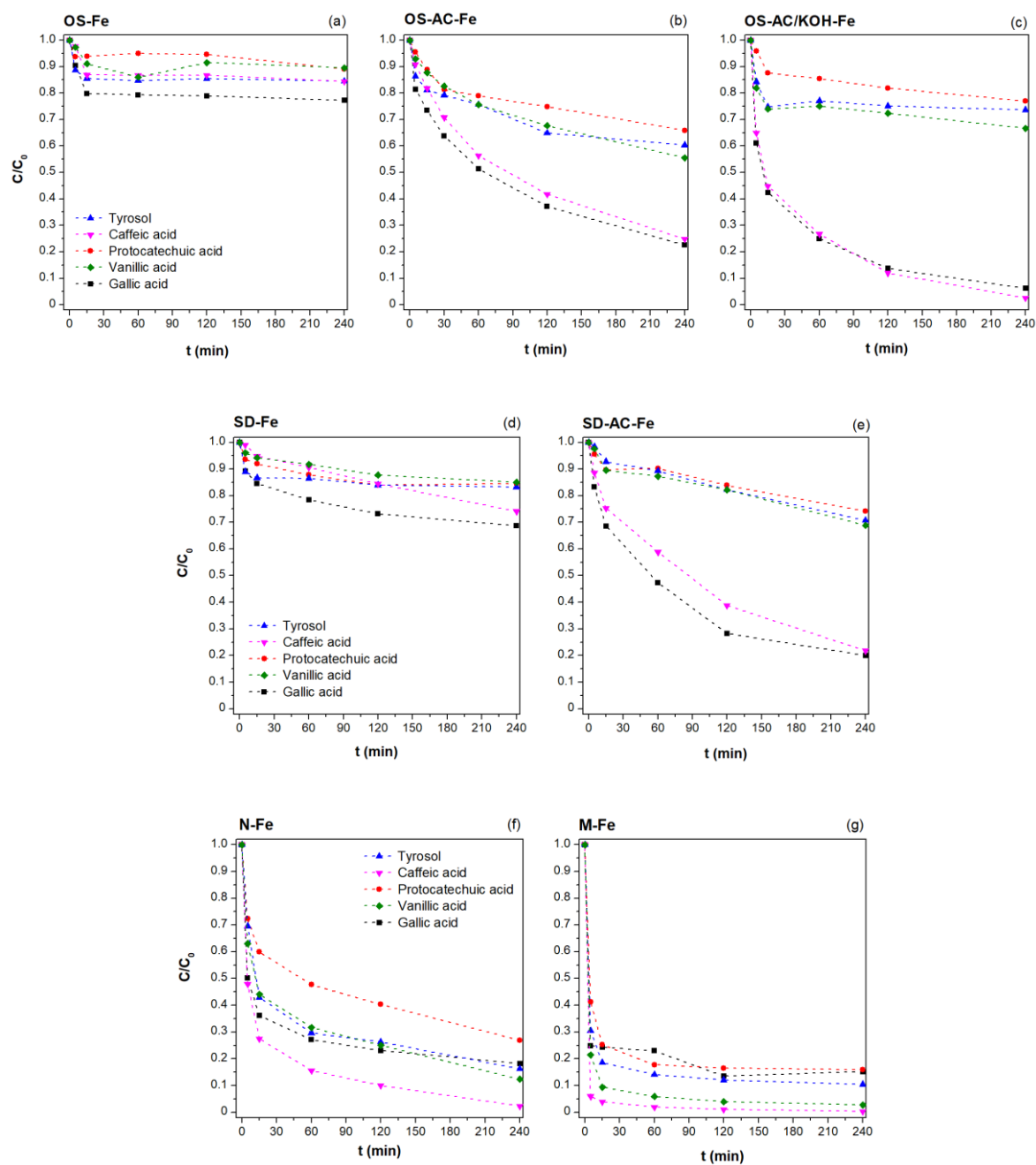


**Figure S3.** Adsorption runs using the catalysts prepared: removal of each phenolic compound ( $C/C_0$ ) over time. Experimental conditions:  $[Cat] = 0.5 \text{ g/L}$ ,  $T = 25^\circ\text{C}$ ,  $\text{pH} = \text{unadjusted}$ .



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28 **Figure S4.** Catalytic effect of H<sub>2</sub>O<sub>2</sub> on the removal of phenolic compounds (C/C<sub>0</sub>) over time. Experimental  
 29 conditions: [H<sub>2</sub>O<sub>2</sub>] = 1 g/L, T = 25 °C, pH = unadjusted.



**Figure S5.** Catalytic runs using the Fe/AC catalysts prepared: removal of phenolic compounds ( $C/C_0$ ) over time. Experimental conditions:  $[H_2O_2] = 1$  g/L,  $[Cat] = 0.5$  g/L,  $T = 25$  °C, pH = unadjusted.