

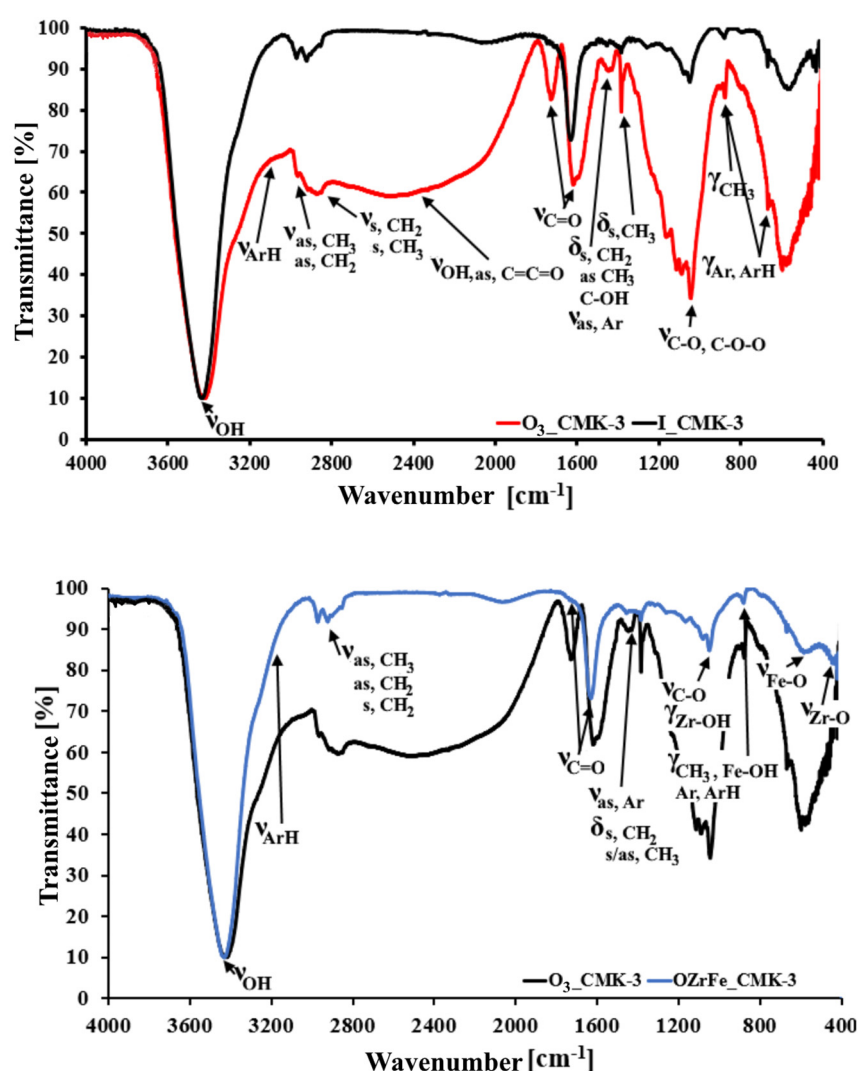
# Modified Ordered Mesoporous Carbons for Cr(VI) Removal from Wastewater

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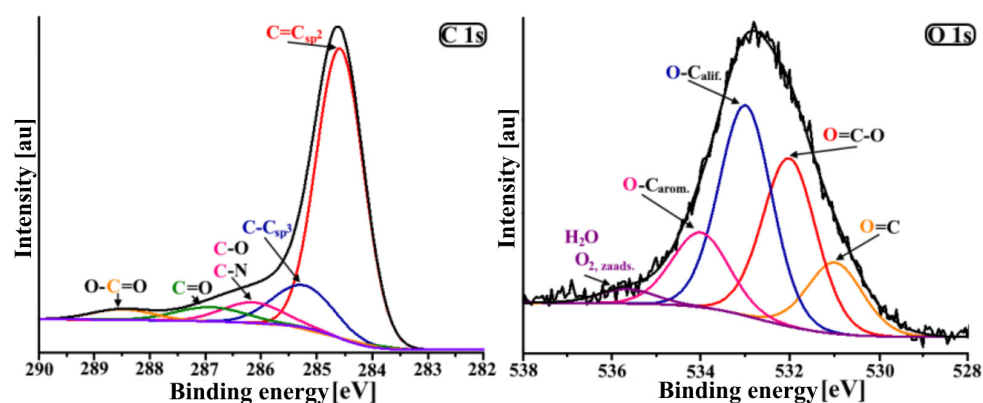
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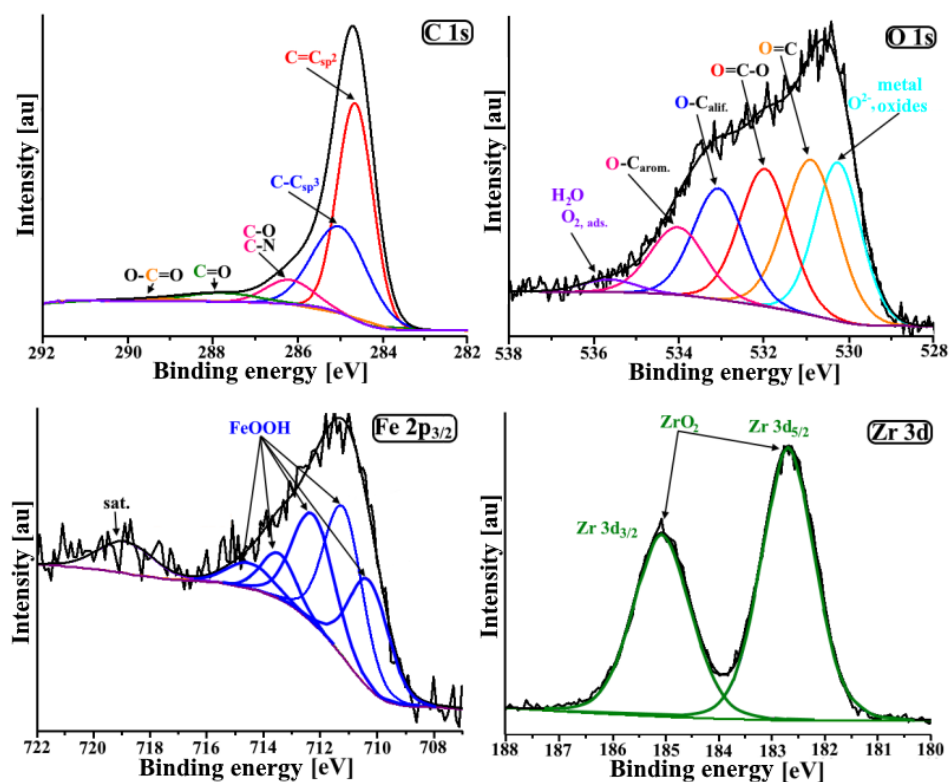
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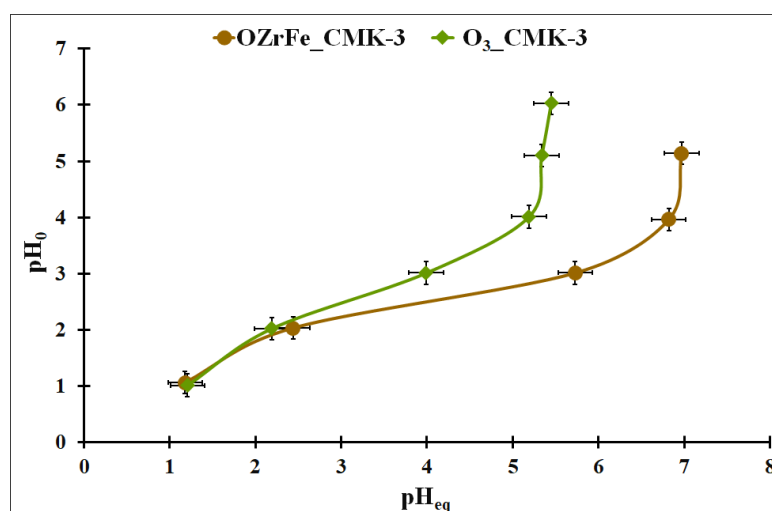
**Figure S1.** The FT-IR spectra of the I\_CMK-3, O<sub>3</sub>\_CMK-3 and OZrFe\_CMK-3.



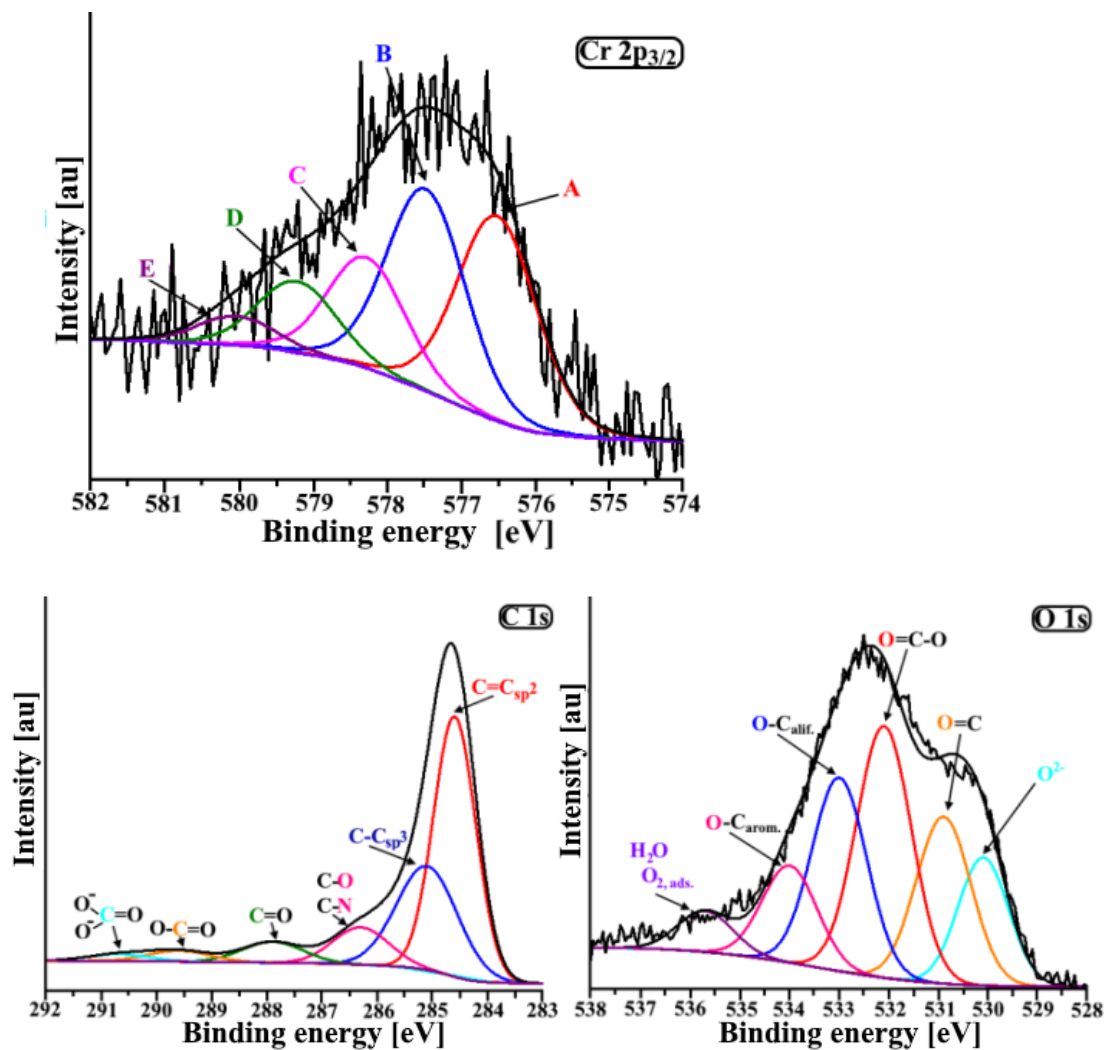
**Figure S2.** The high-resolution XPS spectra of the core energy levels C 1s and O 1s for O<sub>3</sub>\_CMK-3 carbon.



**Figure S3.** The high-resolution XPS spectra of the core energy levels C 1s, O 1s, Fe 2p<sub>3/2</sub> and Zr 3d for OZrFe\_CMK-3 carbon.



**Figure S4.** The pH<sub>0</sub> in the function of pH<sub>eq</sub> for studied carbonaceous materials during Cr(VI) adsorption ( $m = 20$  mg,  $V = 5$  mL,  $t = 24$  hrs,  $C_{0Cr(VI)} = 58$  mg L<sup>-1</sup>).



**Figure S5.** The Cr 2p<sub>3/2</sub> energy core level for Cr-loaded OZrFe\_CMK-3 carbon (the Cr content: 50 mg g<sup>-1</sup>; A: 576.5 eV, B: 577.5 eV, C: 578.3 eV, D: 579.2 eV, E: 580.0 eV; this signal is related to the Cr(III)).

**Table S1.** The comparison of Cr(VI) adsorption performance between data obtained from the literature and our studies.

Material	pH	$a_{\max}$ [mg g <sup>-1</sup> ]	Lit.
Rice husk	5.0	38.4	[1]
<i>Eshcherichia coli</i> and <i>Staphylococcus epidermidis</i>	3.0–6.0	16.9	[2]
<i>Fusarium sp.</i> (filamentous)	5.0	18.2	[3]
O <sub>3</sub> _CMK-3	5.3	29.9	our study
OZrFe_CMK-3	5.8	50.1	

[1] Gonzalez, M.H.; Araújo, G.C.; Pelizaro, C.B.; Menezes, E.A.; Lemos, S.G.; De Sousa, G.B.; Nogueira, A.R.A. Coconut coir as biosorbent for Cr (VI) removal from laboratory wastewater. *J. Hazard. Mater.* 2008, 159, 252–256.

[2] Sen, M.; Dastidar, M.G. Adsorption-desorption studies on Cr (VI) using non-living fungal biomass. *Asian J. Chem.* 2010, 22, 2331.

[3] Elangovan, R.; Philip, L.; Chandraraj, K. Biosorption of chromium species by aquatic weeds: Kinetics and mechanism studies. *J. Hazard. Mater.* 2008, 152, 100–112.