

Supplementary Materials

Valorization of olive pomace into functional hydrochars for dye removal from water: effects of hydrothermal carbonization and soft alkaline activation

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Table S1 – Statistical parameters obtained from data analysis of kinetic and isotherm studies.

Material	Model	R ²	SSE	RMSE	χ^2
<i>Kinetic tests</i>					
OP	Pseudo-second order	0.999	15.963	1.787	0.557
OP_180_1	Pseudo-second order	0.996	12.100	1.556	1.302
OP_220_0	Pseudo-second order	0.995	3.106	0.788	0.469
OP_220_1	Pseudo-second order	0.999	2.894	0.761	0.168
OP_220_1_a	Pseudo-second order	0.999	58.967	3.434	2.045
OP_220_1_a_w	Pseudo-second order	1.000	37.657	3.068	0.574
<i>Isotherm tests</i>					
OP	Langmuir	0.983	392.079	9.900	19.566
OP 40°C	Langmuir	0.998	10.033	1.584	0.495
OP 5°C	Langmuir	0.960	148.253	6.088	3.452
OP_220_1_a	Langmuir	1.000	3.691	0.961	0.185
OP_220_1_a 40°C	Langmuir	0.995	27.335	2.614	0.525
OP_220_1_a 40°C	Temkin	0.994	14.867	1.928	0.246
OP_220_1_a 5°C	Langmuir	0.963	127.932	5.655	2.329
OP_220_1_a_w	Freundlich	0.977	335.198	9.154	3.848
OP_220_1_a_w 5°C	Freundlich	0.954	1865.137	21.594	18.155
OP_220_1_a_w 40°C	Freundlich	0.944	2197.541	23.439	23.535

Table S2 – Fitting of mathematical functions describing the increase of the adsorption capacity with the initial MB concentration.

Material	T (°C)	Function type	Equation	R ²
OP	5	Logarithmic	$q_e = 17.986 \ln c_i - 64.176$	0.96
	20	Logarithmic	$q_e = 9.1787 \ln c_i - 20.742$	0.56
	40	Logarithmic	$q_e = 6.8544 \ln c_i - 12.911$	0.81
OP_220_1_a	5	Logarithmic	$q_e = 22.452 \ln c_i - 85.408$	0.93
	20	Logarithmic	$q_e = 14.587 \ln c_i - 49.471$	0.95
	40	Logarithmic	$q_e = 26.929 \ln c_i - 108.5$	0.99
OP_220_1_a_w	5	Exponential	$q_e = 13.026 e^{0.0029 c_i}$	0.95
	20	Linear	$q_e = 0.144 c_i + 14.215$	0.99
	40	Exponential	$q_e = 13.252 e^{0.0029 c_i}$	0.93

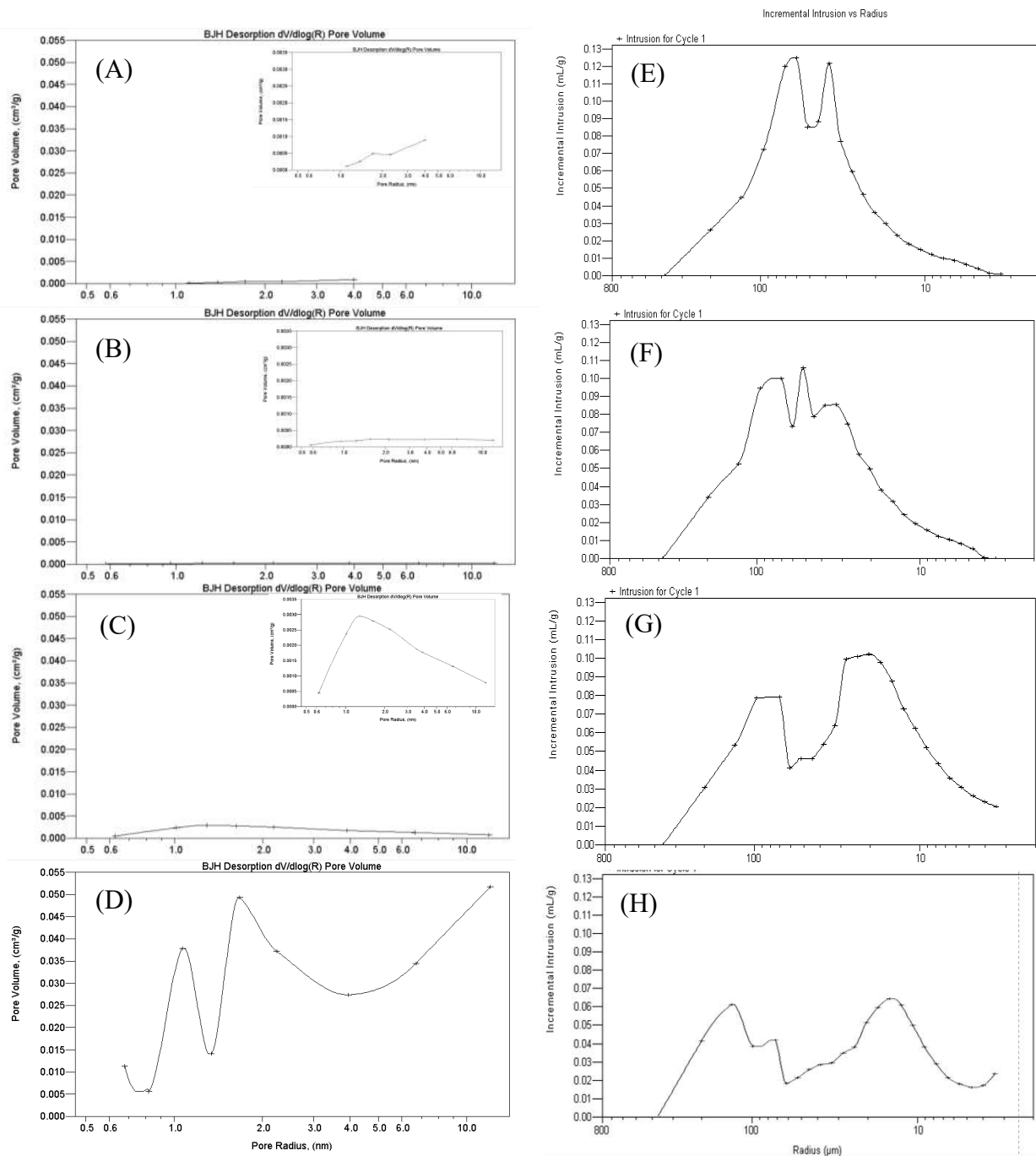


Figure S1 – Pore size distribution curves of samples OP (A,E), OP_{180_1} (B,F), OP_{220_1} (C,G) and OP_{220_1_a_w} (D,H) obtained by BJH method (A-D) and by mercury intrusion (E-H).