Table 1. Adsorption of DCV on catalysts.

Catalyst	Adsorption (%)
Prv	32.6
PP	21.8
PPPrv	46.1
CMC	37.2
CMCPrv	62.7

Adsorption time: 30 min.

Table 2. Equilibrium isotherm and kinetic model parameters for DCV adsorption.

Models	Parameters	Prv	PPPrv	CMCPrv
Langmuir	q_m (mg g^{-1})	50.0	100.0	111.1
	K_L (L mg^{-1})	0.04	0.03	0.05
	R^2	0.99	0.99	0.99
	APE (%)	1.80	2.10	28.6
Freundlich	n	1.11	1.3	1.11
	K_F (mg g^{-1})	2.52	5.7	5.60
	R^2	0.99	1.00	0.99
	APE (%)	2.69	3.40	7.56
D-R	q_m (mg g^{-1})	60.0	90.0	134.2
	E (KJ mol^{-1})	0.11	0.15	0.12
	β (mol^2 J^{-2})	$4*10^{-5}$	$2*10^{-5}$	$3*10^{-5}$
	R^2	0.95	0.98	0.98
	APE (%)	20.1	28.6	6.95
Kinetic models				
Pseudo first order	q_e	50.0	79.4	99.7
	K_1 (min^{-1})	0.07	0.09	0.06
	R^2	1.00	1.00	1.00
	APE (%)	0.43	1.60	4.55
Pseudo second order	q_e	50.0	83.3	100
	K_2 (g mg^{-1} min^{-1})	0.01	0.01	0.01
	R^2	0.98	0.99	0.97
	APE (%)	40.8	19.3	20.6
Intra-particle diffusion	V	10.7	13.4	19.3
	C	5.34	4.80	7.05
	R^2	0.99	0.99	0.99
	APE (%)	1.26	16.08	2.04

Table 3. Thermodynamic parameters of DCV adsorption.

Adsorbent	Temperature (K)	ΔH° (KJ mol^{-1})	ΔS° (KJ mol^{-1} K^{-1})	ΔG° (KJ mol^{-1})
Prv	283	+4.42	+0.02	-1.2
	293			-1.4
	303			-1.6
PPPrv	283	+5.10	+0.02	-0.5
	293			-0.7
	303			-0.9
CMCPrv	283	+6.33	+0.03	-2.1
	293			-2.4
	303			-2.7

Table 4. The kinetic parameters for the degradation of DCV at various initial concentrations.

Initial concentration	Photocatalyst	Rate constants of degradation		
		R^2	K_1 (min^{-1})	$T_{1/2}$ (min)
20	Prv	0.98	0.001	693.3
	PPPrv	0.98	0.001	693.1
	CMCPrv	0.94	0.004	173.2
40	Prv	0.98	0.002	346.5
	PPPrv	0.96	0.002	346.5
	CMCPrv	0.98	0.005	138.6
60	Prv	0.99	0.003	231.0
	PPPrv	0.95	0.002	346.5
	CMCPrv	0.95	0.008	86.69
80	Prv	0.97	0.002	346.5
	PPPrv	0.99	0.005	138.6
	CMCPrv	0.97	0.013	53.32
100	Prv	0.98	0.002	346.5
	PPPrv	0.97	0.004	173.2
	CMCPrv	0.98	0.018	38.55
120	Prv	0.94	0.001	693.1
	PPPrv	0.98	0.002	346.5
	CMCPrv	0.99	0.025	27.72
140	Prv	0.96	0.001	693.3
	PPPrv	0.94	0.002	346.5
	CMCPrv	0.93	0.012	57.79

Table 5. GC-MS retention times of the DCV identified intermediates.

Compound	R_t (min)	Characteristic ions (*m/z*)
Dichlorvos	14.78	220
Desmethyl dichlorvos	14.29	207, 95, 79
O,O-dimethyl phosphoric ester	10.83	109, 80, 79