Table S1. Effects of application dosage on the degradation characteristics of DZ with different granule size ranges.

Granule size range (μm)	Dosage (mg/kg)	Rate constant *(k)*	Half-life $t_{1/2}$ (d)	r^2
>400	360	0.147±0.003 c	4.714	0.9571
	180	0.308±0.009 b	2.250	0.9362
	90	0.597±0.025 a	1.161	0.9138
300-400	360	0.169±0.012 c	4.101	0.9777
	180	0.332±0.020 b	2.087	0.9380
	90	0.475±0.022 a	1.459	0.9657
100-300	360	0.203±0.015 c	3.414	0.9317
	180	0.439±0.022 b	1.579	0.8983
	90	0.512±0.024 a	1.354	0.9512
<100	360	0.206±0.015 b	3.364	0.9436
	180	0.570±0.080 a	1.216	0.8622
	90	0.575±0.043 a	1.205	0.8623
SD	360	0.242±0.017 c	2.864	0.8680
	180	0.857±0.006 b	0.809	0.9923
	90	1.005±0.111 a	0.690	0.9901

SD = stock solution with DZ dissolved in acetone. Means (N = 3) within the same column followed by the same letter are not statistically different (P < 0.05) according to Duncan's new Multiple-Range test.

Table S2. Fitting results for half-life values of DZ granule size range as a function of temperature.

Granule size ranges (μm)	Fitting equation	r^2	*p*
>400	$t_{1/2}$=-0.319T+11.807	0.902	<0.05
300-400	$t_{1/2}$=-0.248T+9.312	0.906	<0.05
100-300	$t_{1/2}$=-0.195T+7.236	0.857	<0.05
<100	$t_{1/2}$=-0.149T+5.720	0.861	<0.05
SD	$t_{1/2}$=-0.087T+3.453	0.857	<0.05

Table S3. Effects of temperature on the degradation characteristics of DZ with different granule size ranges.

Temperature (℃)	Granule size ranges (μm)	Rate constant *(k)*	Half-life $t_{1/2}$ (d)	r^2
35	>400	0.414±0.003 c	1.674	0.9317
	300-400	0.472±0.018 c	1.468	0.9234
	100-300	0.578±0.014 b	1.199	0.8967
	<100	0.625±0.014 b	1.109	0.9289
	SD	0.912±0.029 a	0.760	0.9888
25	>400	0.308±0.009 d	2.250	0.9362
	300-400	0.332±0.020 d	2.087	0.9380
	100-300	0.469±0.022 c	1.479	0.8983
	<100	0.570±0.080 b	1.216	0.8622
	SD	0.857±0.006 a	0.809	0.9923
15	>400	0.098±0.003 e	7.071	0.9505
	300-400	0.132±0.004 d	5.250	0.9818
	100-300	0.185±0.006 c	3.747	0.9825
	<100	0.215±0.009 b	3.223	0.9483
	SD	0.348±0.012 a	1.991	0.9416
	>400	0.063±0.003 e	11.000	0.9716
	300-400	0.078±0.006 d	8.885	0.9561

4	100-300	0.098±0.004 c	7.071	0.9667
	<100	0.125±0.008 b	5.544	0.9533
	SD	0.207±0.010 a	3.354	0.8835

SD = DZ in acetone. Means (N = 3) within the same column followed by the same letter are not statistically different (P < 0.05) according to Duncan's new Multiple-Range test.

Table S4. Effects of pH on the degradation characteristics of DZ with different granule size ranges.

pH	Granule size range (μm)	Rate constant (*k*)	Half-life ($t_{1/2}$)	r^2
5	>400	0.272±0.033 d	2.548	0.8573
	300-400	0.326±0.023 d	2.126	0.8920
	100-300	0.449±0.020 c	1.543	0.9674
	<100	0.553±0.019 b	1.253	0.8992
	SD	0.777±0.071 a	0.892	0.9298
7	>400	0.308±0.009 b	2.250	0.9362
	300-400	0.332±0.020 b	2.087	0.9380
	100-300	0.469±0.022 b	1.479	0.8983
	<100	0.570±0.080 b	1.216	0.8622
	SD	0.857±0.006 b	0.809	0.9923
9	>400	0.380± 0.027 c	1.809	0.9040
	300-400	0.436±0.011 c	1.589	0.9349
	100-300	0.650± 0.045 b	1.071	0.9747
	<100	0.780±0.074 b	0.888	0.8675
	SD	1.129±0.017 a	0.614	0.8850

SD = DZ in acetone. Means (N = 3) within the same column followed by the same letter are not statistically different (P < 0.05) according to Duncan's new Multiple-Range test.

Table S5. MITC released over time from DZ at different DZ dosages.

Time (d)	Concentration of MITC (mg/L)		
	360 mg/kg	180 mg/kg	90 mg/kg
0.08	3.68±0.3596 a	2.19±0.3026 b	3.41±0.2311 a
0.33	5.90±0.6927 a	4.49±0.4102 b	3.63±0.3142 c
0.5	7.12±0.4761 a	3.93±0.6725 b	3.72±0.4069 b
1	7.67±0.5484 a	4.74±0.5921 b	4.17±0.3808 b
1.5	8.47±0.6394 a	5.09±0.7795 b	4.51±0.4811 b
2	9.11±0.5673 a	6.28±0.7264 b	4.10±0.5760 c
3	10.63±0.6651 a	6.46±0.5774 b	3.88±0.3256 c
5	12.22±0.8285 a	7.12±0.6012 b	5.10±0.4392 c
6	15.97±1.2654 a	9.26±0.4725 b	5.55±0.4316 c
8	14.20±0.9098 a	8.65±0.3400 b	5.26± 0.8082 c
10	16.22±1.0332 a	8.19±0.4807 b	5.17±0.5707 c

Means (N = 3) within the same column followed by the same letter are not statistically different (P < 0.05) according to Duncan's new Multiple-Range test.

Figure S1. Image of DZ with different granule size ranges.

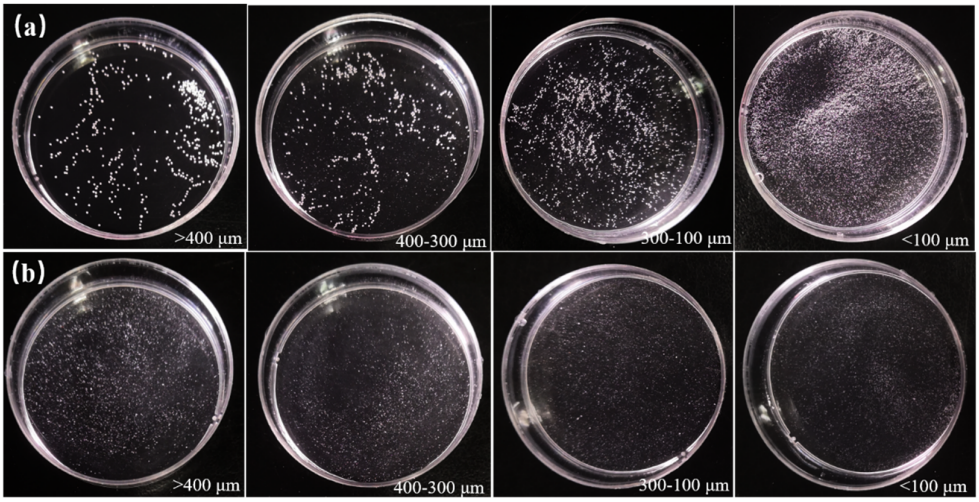

Figure S2. Dissolution of DZ in different granule size ranges in water for 5 days at 4 ℃ (a) and 35 ℃ (b).

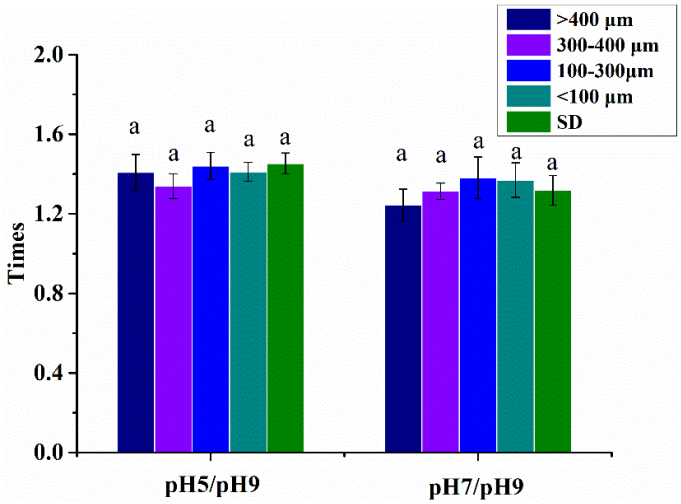

Figure S3. Comparison of DZ half-life values at pH 5 and pH 7 compared to pH 9. Different letters within the same graph indicate a significant difference at $p < 0.05$ level by Duncan's new multiple range test.