Supporting information for

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Figure S1. Diagram of the *Arabidopsis thaliana* hydroponics set-up, a) 1.5 ml centrifuge tube cap; b) hydroponic nutrient solution; c) 100-well centrifuge tube cassette

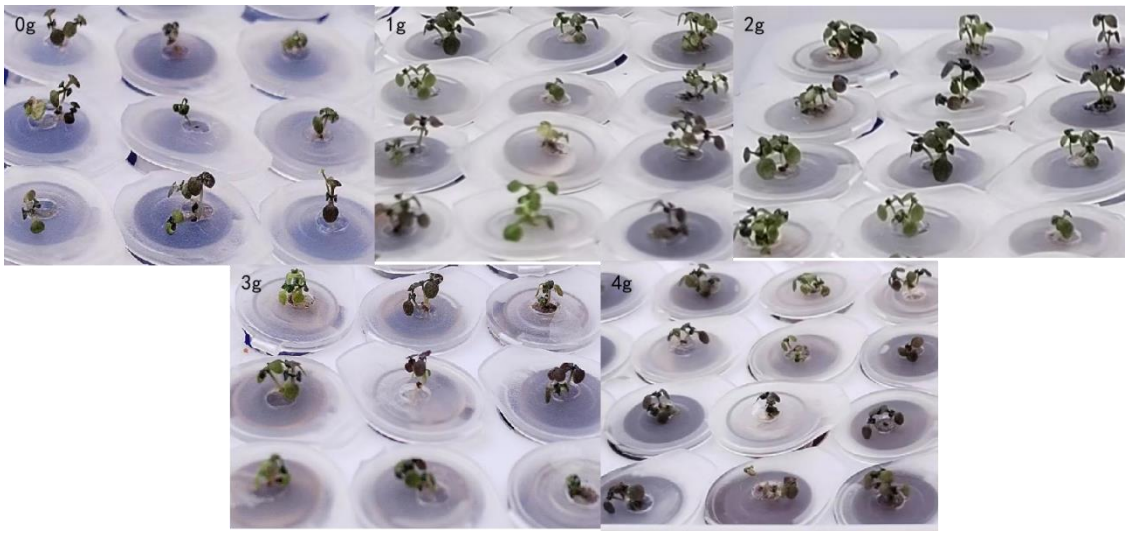

Figure S2. The growth status of *Arabidopsis thaliana* at different doses of P sorbent-fertilizer within first 10 days

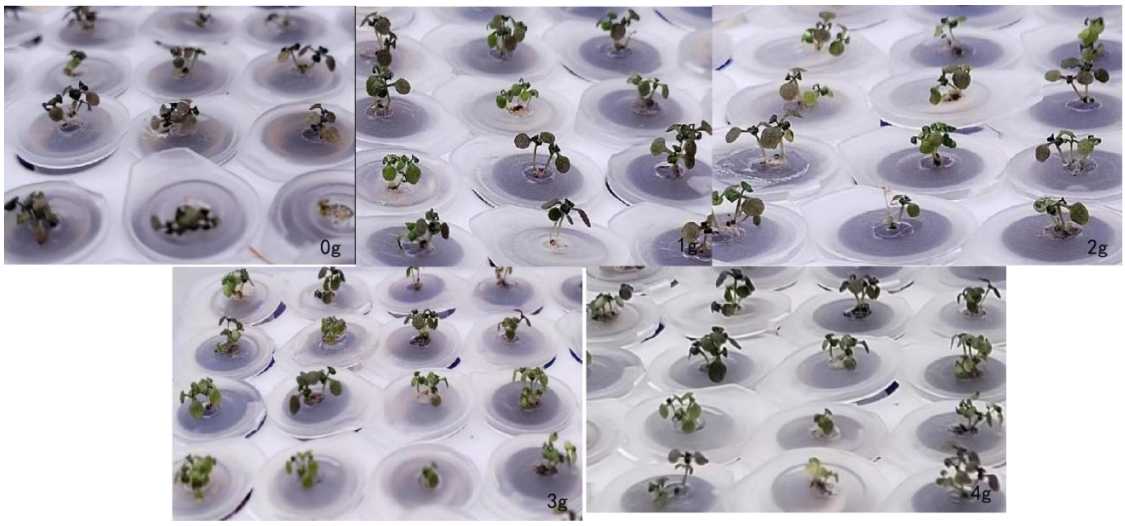

Figure S3. The growth status of *Arabidopsis thaliana* at different doses of P sorbent-fertilizer during day 10-20

Table S1. Survival rates of *Arabidopsis thaliana* at different doses of P sorbent-fertilizer

Dosage of P sorbent- fertilizer	Survival rates		
	Day 10	Day 20	Day 30
0 g	95%	90%	90%
1 g	97.5%	95%	92.5%
2 g	100%	95%	95%
3 g	97.5%	97.5%	97.5%
4 g	90%	90%	85%

Table S2. The released P amount from different masses of P-loaded P-sorbent D during first 10 days

released P amount (mg/L)	different masses of P-loaded P-sorbent D			
	1g	2g	3g	4g
1d	1.65	2.89	4.24	6.17
2d	1.52	2.48	3.85	5.43
3d	1.25	2.22	3.59	5.00
4d	1.21	1.83	3.17	4.86
5d	0.92	1.54	2.80	4.16
6d	0.38	1.16	2.54	3.35
7d	0.26	0.71	2.08	2.87
8d	0.20	0.33	1.62	2.38
9d	0.11	0.20	0.91	1.53
10d	0.04	0.10	0.47	0.80