The Utilization of Phosphogypsum as a Sustainable Phosphate-Based Fertilizer by *Aspergillus niger*

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Table S1. The pH, total P concentration, water-soluble P concentration and Pb concentration in PG.

	pH	Total P concentration (mg/g)	Water-soluble P concentration (mg/g)	Pb concentration (mg/g)
PG	3.72	24.81	3.67	1.49

Table S2. The pH value and water-soluble P concentration between TCP and PG treatments (no ANG) during incubation (3, 5, 7 days).

Incubation time (day)	TCP		PG	
	pH	Water-soluble P concentration(mg/g)	pH	Water-soluble P concentration(mg/g)
3 days	4.4±0.1	338.7±39.6	4.0±0.3	8.5±1.6
5 days	5.2±0.8	274.2±45.0	3.9±0.2	11.5±3.8
7 days	5.5±1.4	667.7±18.0	2.9±0.1	28.0±1.8

The pH was measured by pH meter. The water-soluble P was measured by ICP-OES. The error bars represent the standard deviations of three replicates. The significant differences among the treatments were identified by Tukey's honestly significant difference test ($p < 0.05$) via one-way ANOVA.

Table S3. The physical and chemical properties of Shajiang black soil.

	Type	Soil texture (g/kg)			Organic matter (g/kg)	Total nitrogen (g/kg)	Available nitrogen (mg/kg)	Available phosphorus (mg/kg)	Available potassium (mg/kg)	pH
		Clay	Loam	Sand						
Soil	Shajiang black soil	321	265	414	18.1	1.1	146.5	12.8	128.6	7.8