**Supporting Information**

**Changes in phosphorus mobilization and community assembly of bacterial and fungal communities in rice rhizosphere under phosphate deficiency**

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**Collection of root exudates**

Root exudates were collected using SOIL-HYDROPONIC-HYBRID approach (Oburger and Jones, 2018). Plant was taken out from soil carefully, then roots were washed with sterile water to remove soil. The plant was placed into a baffled flask with 100 ml sterile double distilled water, and incubated for 30 min. Then the culture water was filtered by using 0.45mm filter paper. The percolate was used for downstream experiment.

**Impact of root exudates on microbial Pi-solubilizing capacity**

Soil microbes (SM) were extracted from 1 g soil with 100 ml sterile water, then 5 mL supernatant was added to 50 mL sterile PVK liquid medium for incubation. Five treatments were set up, including Control (PVK with SM), RE- (PVK with 5 ml root exudates from -P treatments), RE+ (PVK with 5 ml root exudates from +P treatments), MRE- (RE- with SM), and MRE+ (RE+ with SM). All the culture systems were adjusted to 60 ml with sterile water. Each treatment contained three replicates. All the culture systems were incubated for 2 days at 28°C and 180 rpm in a thermostatic shaker. After incubation, the culture was centrifuged at 5000 *g* for 2 min. P content in the supernatant was measured.

**Reference**

Oburger, E., and Jones, D.L. (2018). Sampling root exudates – Mission impossible? Rhizosphere 6, 116-133. doi: 10.1016/j.rhisph.2018.06.004.



**Figure S1. Dissolved P in the culture systems**

Control: PVK with SM; RE-: PVK with root exudates from -P treatments; RE+: PVK with root exudates from +P treatments; MRE-: RE- with SM, MRE+: RE+ with SM.

Different letters indicate signiﬁcant difference between treatments as determined by Kruskal–Wallis rank sum test (*p* < 0.05).