



**Supplementary Figure S1.** Colonization of *P. hingganense* on mung bean plants at early stage. (A) Fluorescence microscope images showing the hyphae of GFP-tagged *P. hingganense* on the roots at 11 dpi. (B) Enlargement of the rectangle in (A). (C) Light microscope images of trypan blue staining of the hyphae of *P. hingganense* at 11 dpi. (D) Enlargement of the rectangle in (C). Bars, 50  $\mu$ m. Yellow rectangles indicate root areas that are enlarged. Red arrow heads, hyphae.



**Supplementary Figure S2.** Absent of Indole-3-acetic acid (IAA) in *P. hingganense* liquid culture. *P. hingganense* was inoculated and grown in Potato Dextrose (PD) liquid medium supplemented with 0.1% (w/v) L-tryptophan and sampled at 5, 10, 15, and 20 dpi. Positive control, pink color shows the reaction of IAA with Salkowski reagent. Blank control, PD liquid medium without L-tryptophan.