Supplementary materials

Potential of rice stubble as reservoir of bradyrhizobial inoculum in rice-legume crop rotation

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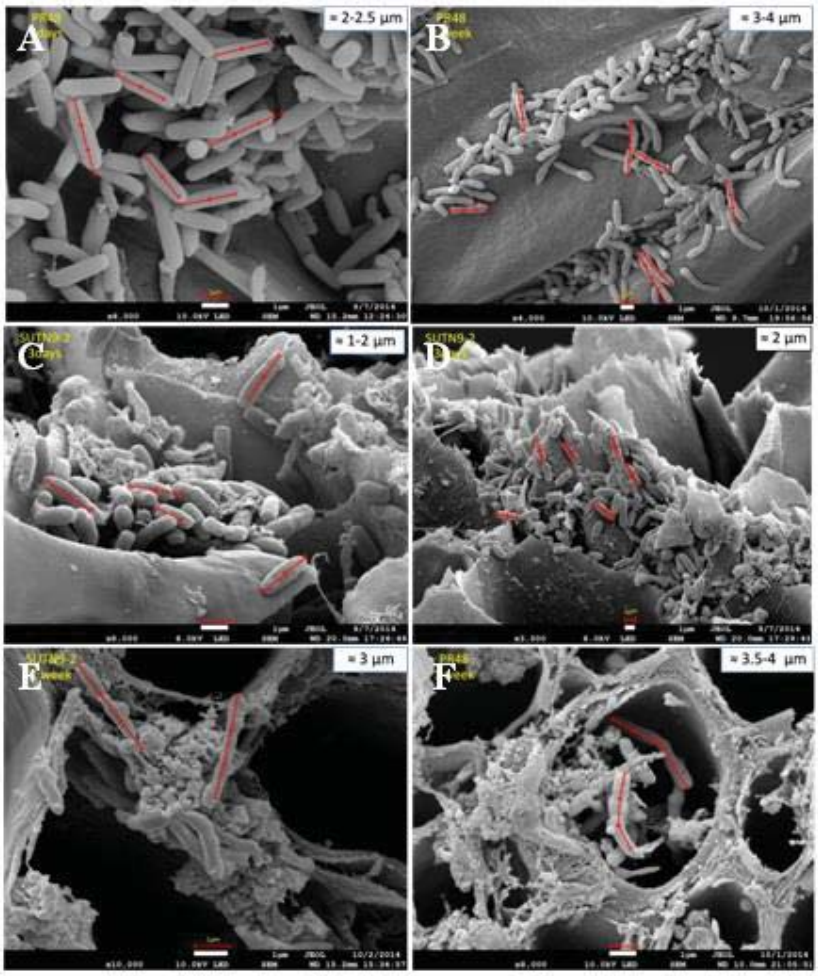


Fig. S1. Scanning electron microscope (SEM) images of 3 days of *Bradyrhizobium* sp. SUT-PR48 on surface at 3 DAI (A) and 7 DAI (cell elongation) (B). SUTN9-2 inside rice roots at 3 DAI (C and D), at 7 DAI (E) and SUT-PR48 (F) (cell elongation) The magnification (the enlargement of an image) is the same in panels A, B, C, D, E and F (bar = 1 µm).

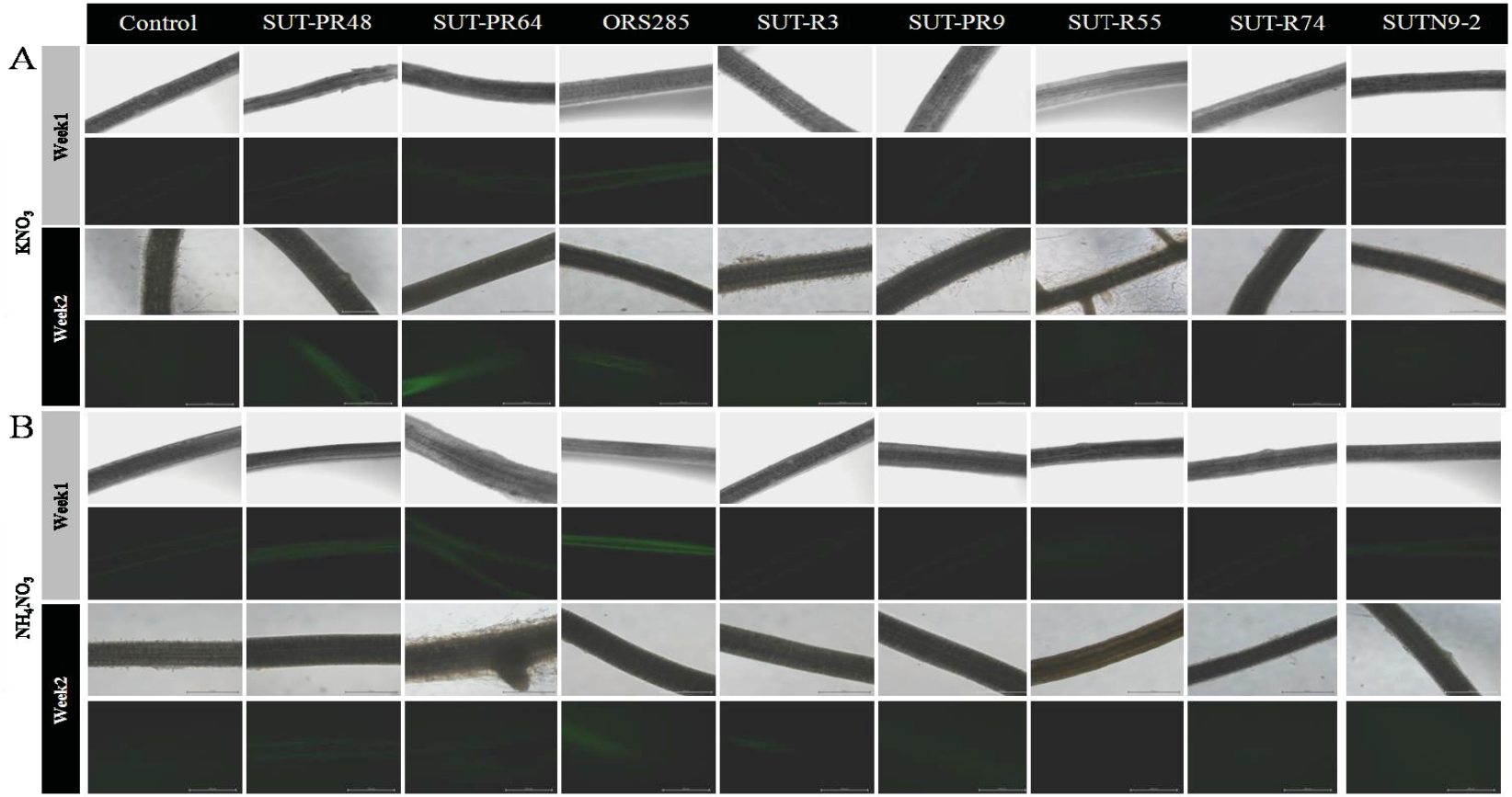


Fig. S2. The production of NO (brightness) in rice roots fed with KNO_3 (A), NH_4NO_3 (B) and urea (C) and inoculated with bradyrhizobial strains. The NO production was detected by confocal fluorescence microscopy with DAF-FM DA (diaminofluorescein-FM diacetate). Scale bars = 1 mm.

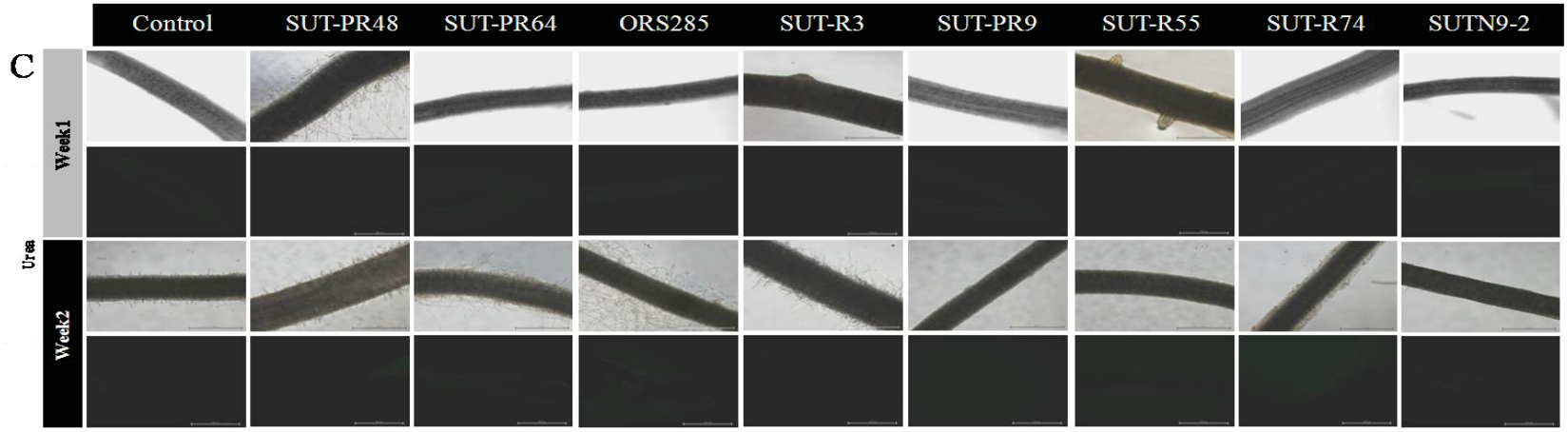


Fig. S2. **(Continued)**

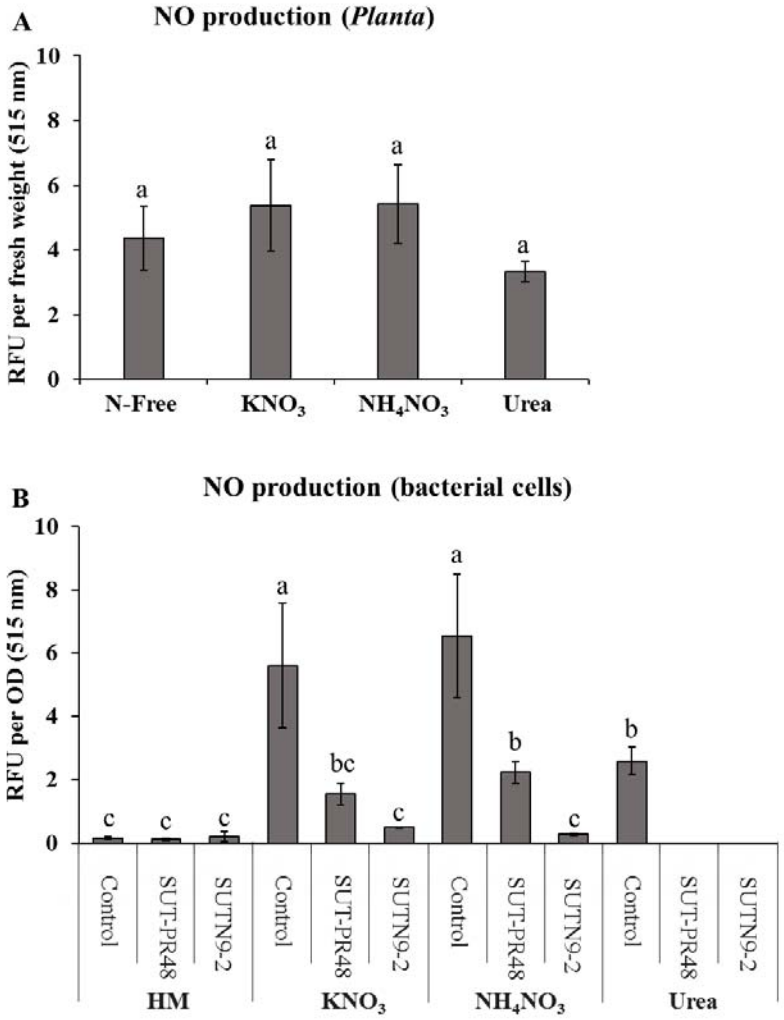


Fig. S3. Quantification of NO production in rice (*O. sativa* PT1) roots and bacterial cells. (A) Relative fluorescence unit (RFU) values per rice root fresh weight at 515 nm were estimated at 1 week. (B) RFU values per OD at 515 nm were estimated at 5 days.

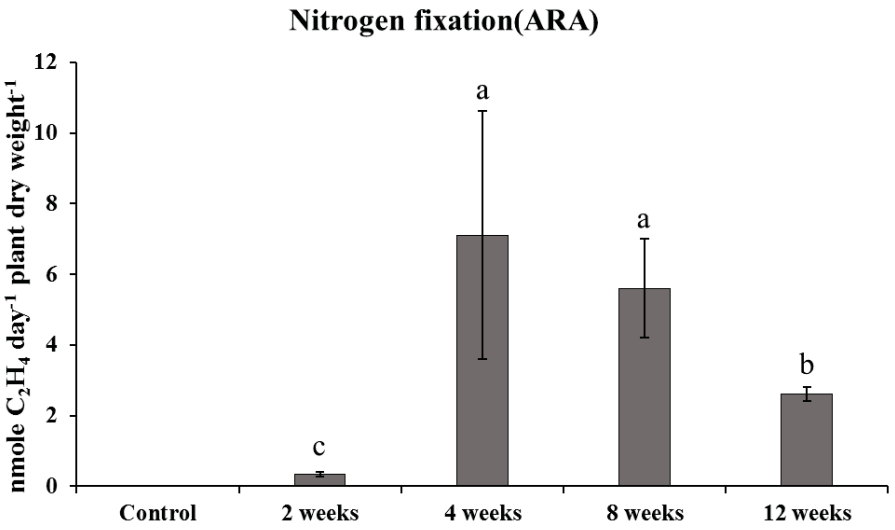


Fig. S4. Nitrogen-fixation of endophytic bradyrhizobial strain SUTN9-2 in rice tissue.

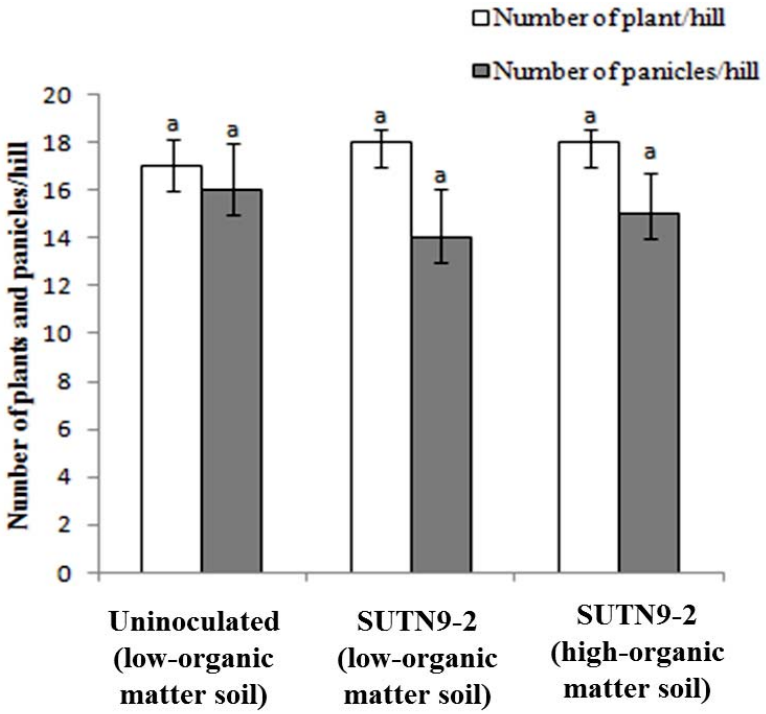
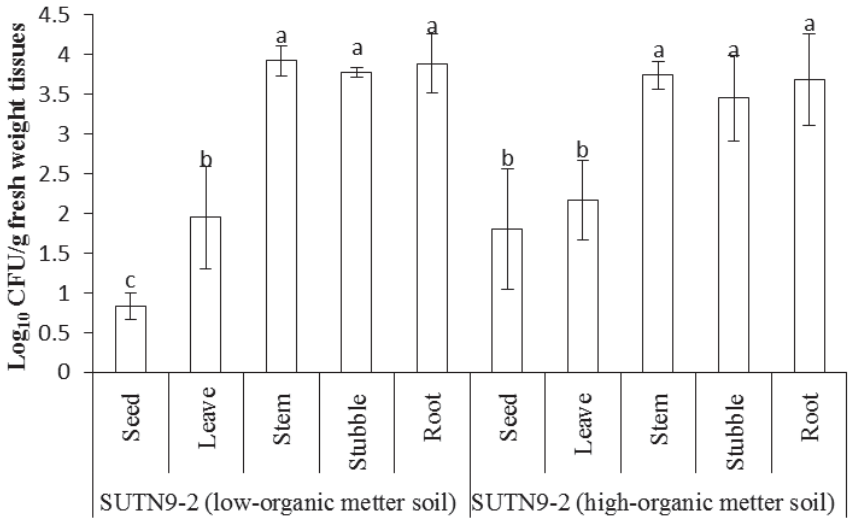


Fig. S5. Effects of inoculation of rice endophytic bradyrhizobia SUTN9-2 on number of plants and panicles per hill. Data present the means of the experiment, each with three replicates. Significant at $P \leq 0.05$ is indicated by mean standard deviation (n=3)



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73 **Fig. S6**. Population densities of GUS-tagging bradyrhizobium SUTN9-2 in different tissues

74 after rice harvested. Significant at $P \leq 0.05$ is indicated by mean standard deviation (n=3)