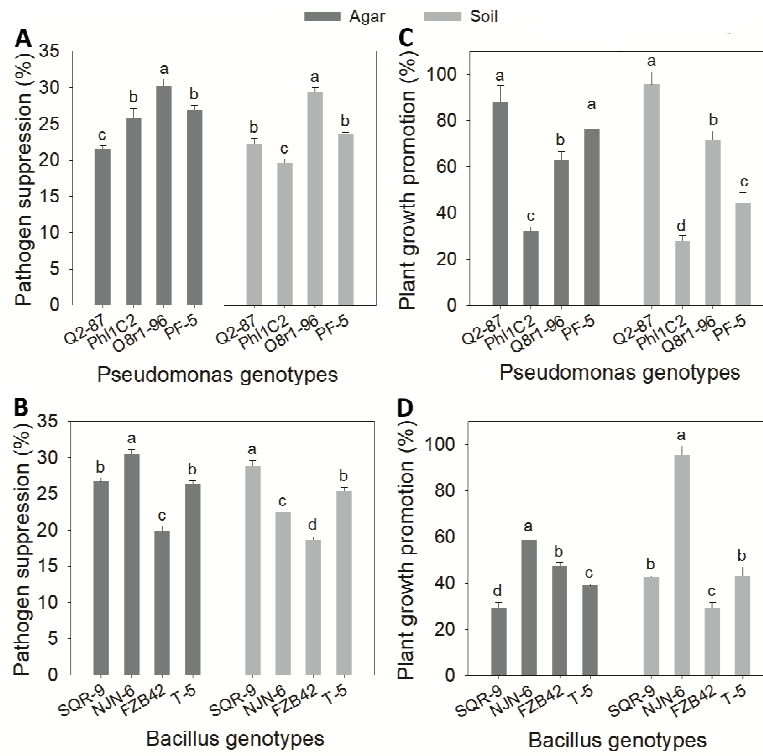
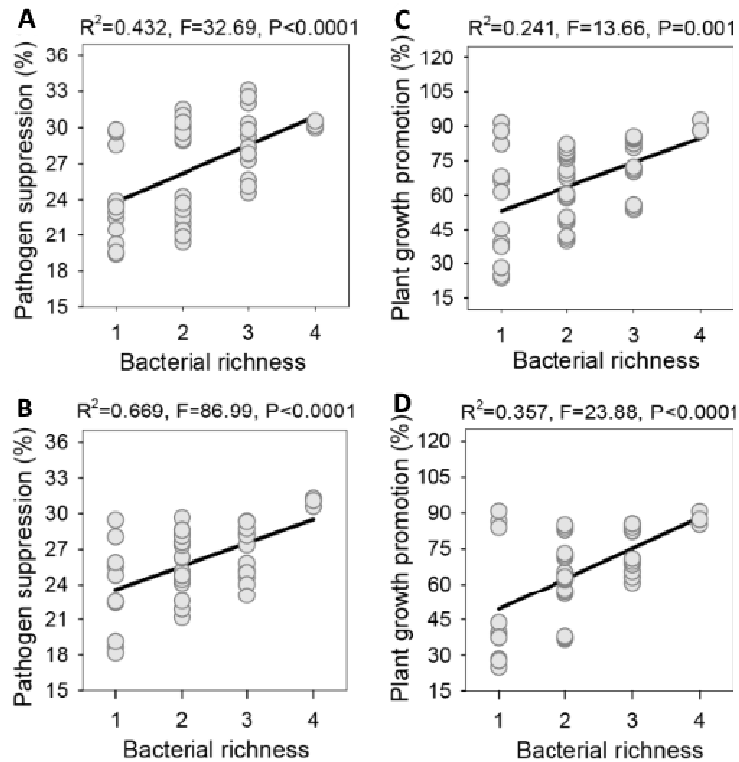


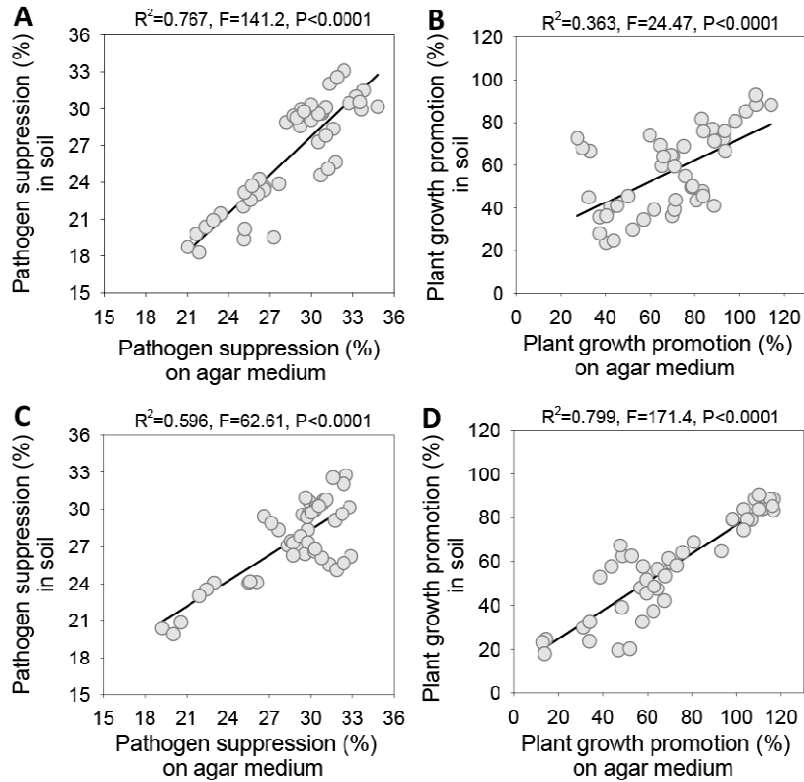
## Supplementary Figures



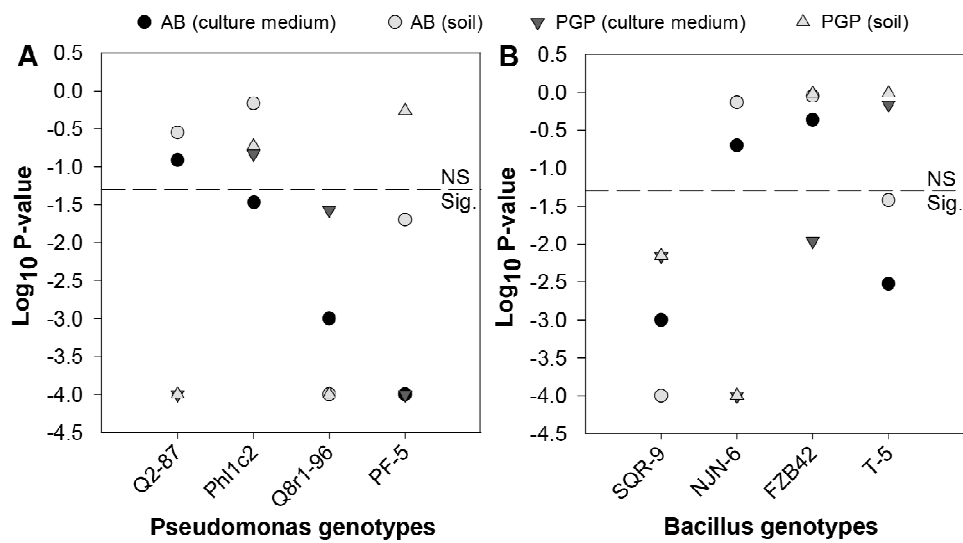
**Fig. S1:** The suppression of plant pathogen *Ralstonia solanacearum* and growth promotion of *Arabidopsis thaliana* plant by bacterial strains from two genera on agar medium and in soil. The left panel shows the pathogen suppression by *Pseudomonas* (A) *Bacillus* (B) strains on agar medium and in soil. The right panel shows the plant growth promotion by *Pseudomonas* (C) *Bacillus* (D) strains on agar medium and in soil. Error bars denote for standard deviation based on three measurement replicates and different letters above bars show significant differences at level  $P < 0.05$  according to Tukey's test.



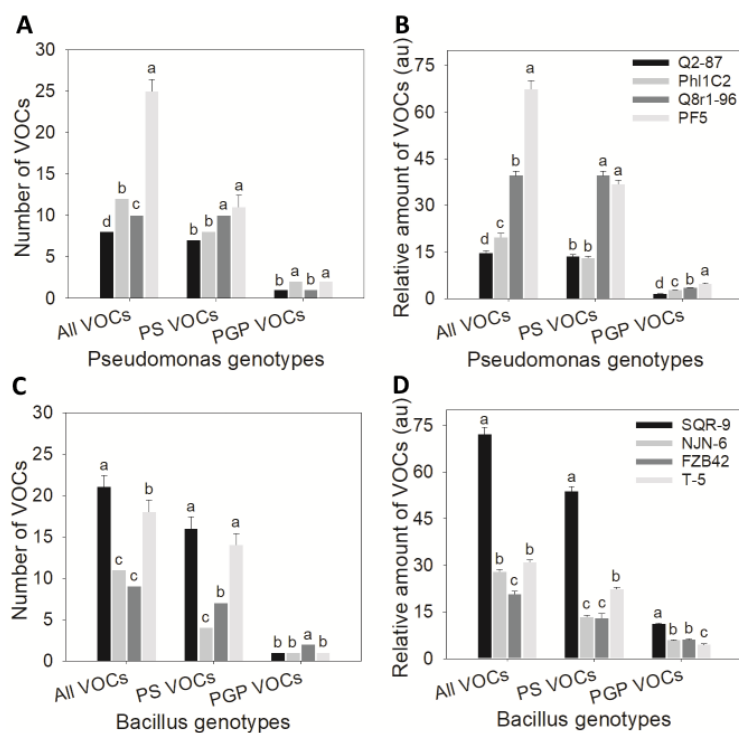
**Fig. S2:** Volatile organic compounds (VOCs)-mediated pathogen suppression and plant growth promotion at different bacterial community richness levels in soil. Left panels show the pathogen suppression by the VOCs produced by *Pseudomonas* (A) and *Bacillus* strains (B) in soil. The right panel shows the plant growth promotion by the VOCs produced by *Pseudomonas* (C) and *Bacillus* strains (D) in soil. The pathogen suppression was determined as cell counts/ml after exposure to the VOCs produced by each bacterial community and expressed as percentage decrease compared to control (no VOC exposure). The plant growth-promotion was determined as plant fresh weight (mg) after exposure to the VOCs produced by each bacterial community and expressed as percentage increase compared to control (no VOC exposure). Each data point represents each replicate.



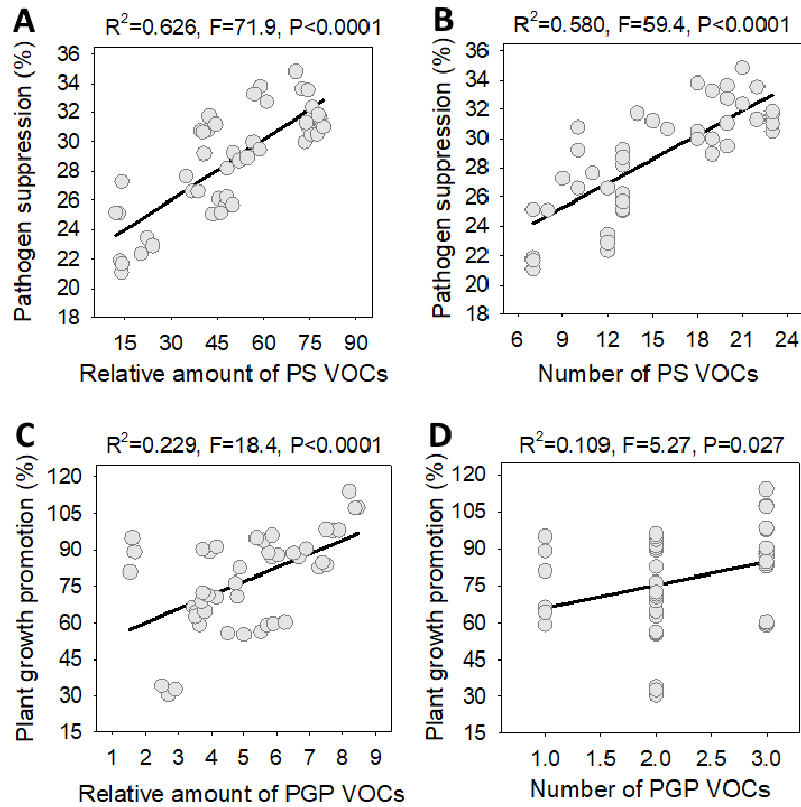
**Fig. S3:** The relationship between pathogen *Ralstonia solanacearum* suppression and *Arabidopsis* plant growth promotion on agar medium and in sterilized soil after exposure to volatile organic compounds (VOCs) produced by bacterial communities. The relationship of pathogen suppression (A) and plant growth promotion (B) on agar medium with that in sterilized soil after exposure to the VOCs produced by *Pseudomonas* communities. The relationship of pathogen suppression (C) and plant growth promotion (D) on agar medium with that in sterilized soil after exposure to the VOCs produced by *Bacillus* communities. Each data point represents each replicate.



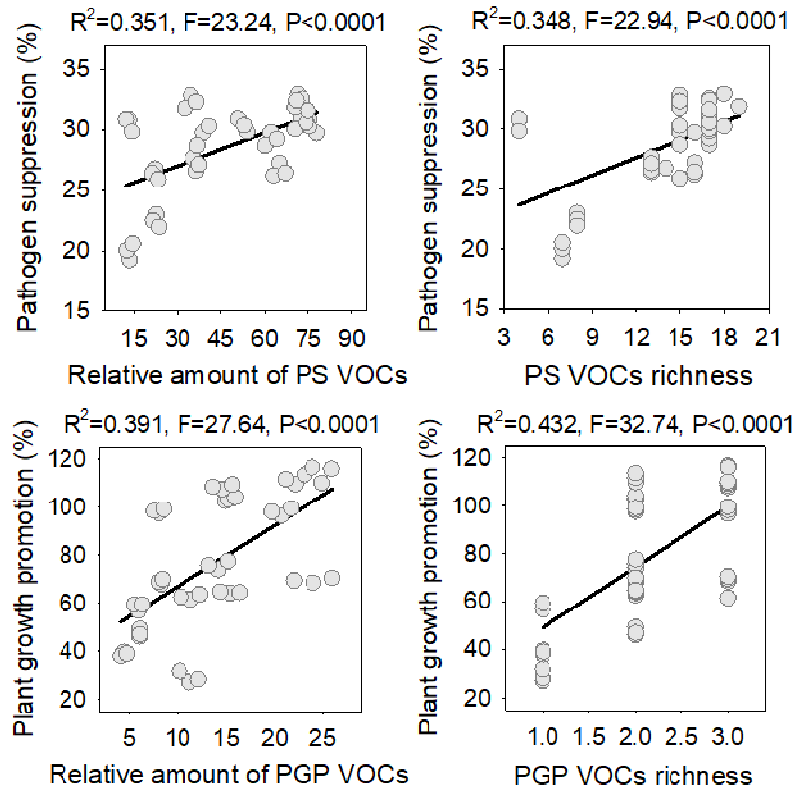
**Fig. S4:** The identity effect of bacterial strains of *Pseudomonas* (A) and *Bacillus* genera (B) on volatile organic compounds-mediated pathogen suppression and plant growth-promotion on agar medium and in soil. The identity effect of bacterial strains was analyzed by performing an ANOVA analysis expressing pathogen suppression and plant growth promotion as a function of the presence of each bacterial strain. The P-values representing significant or non-significant effect were log-transformed.



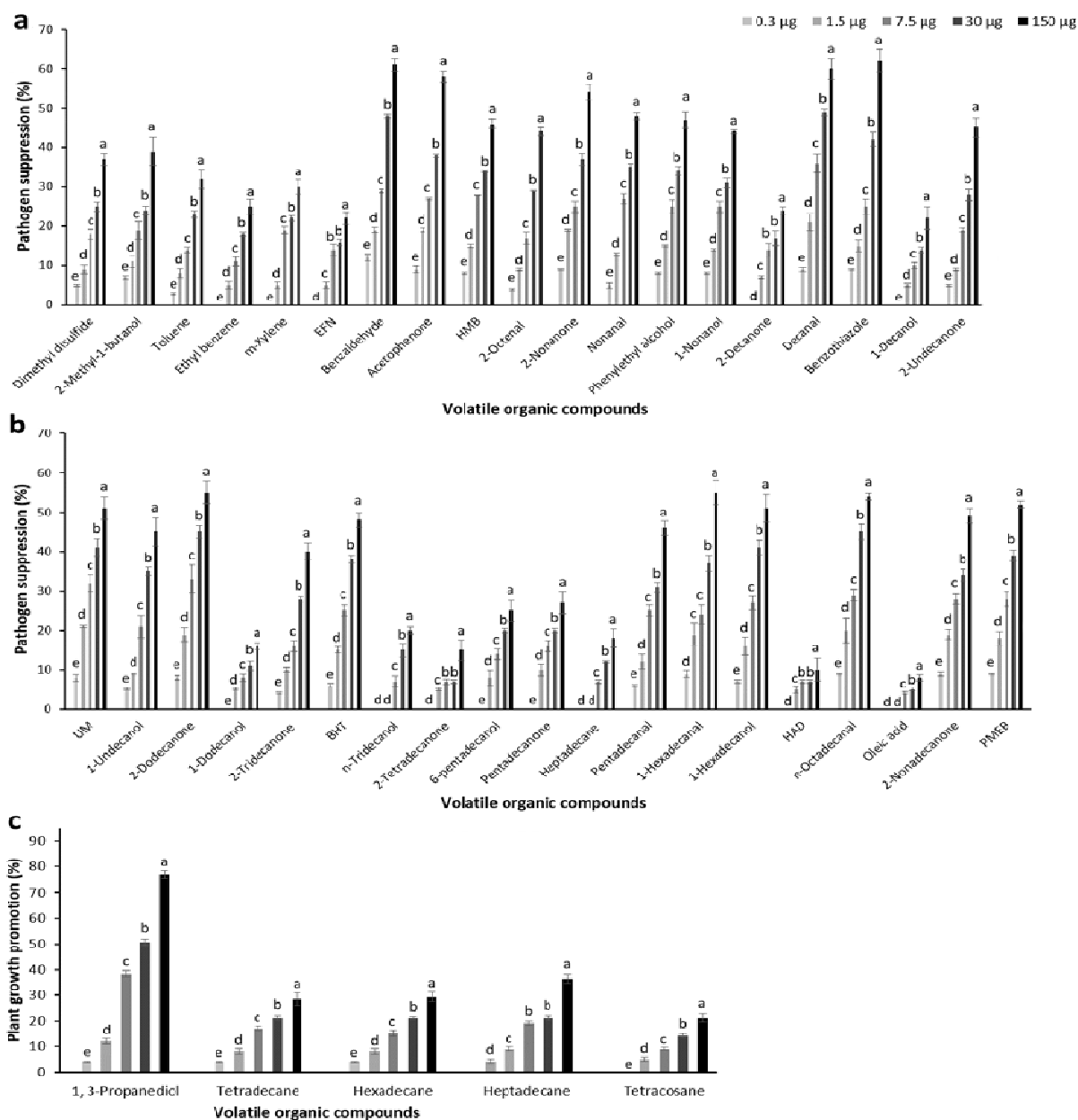
**Figure S5:** Production of volatile organic compounds (VOCs) by *Pseudomonas* and *Bacillus* strains. The numbers (A) and relative amount (B) of all VOCs, pathogen suppressing VOCs and plant growth-promoting VOCs produced by *Pseudomonas* strains and numbers (C) and relative amount (D) of all VOCs, pathogen suppressing VOCs and plant growth-promoting VOCs produced by *Bacillus* strains. The relative amount of VOCs represents the relative peak area to (Z)-3-hexenyl acetate (internal standard) in arbitrary units (a.u.) of VOCs produced by bacterial strains in each genus as detected by GC-MS analysis. Error bars indicate the standard deviation based on three measurement replicates and bars show the mean of four strains of every genus. Different letters show significant differences at  $P < 0.05$  based on Tukey's test.



**Fig. S6:** The relationship of relative amount and number of volatile organic compounds (VOCs) produced by *Pseudomonas* strains with VOC-mediated pathogen suppressing and plant growth promoting activity. The relationship of VOC-mediated pathogen suppression with the relative amount (A) and number (B) of pathogen suppressing VOCs and the relationship of VOC-mediated plant growth promotion with the relative amount (C) and number (D) of plant growth promoting VOCs. Each data point represents each replicate.

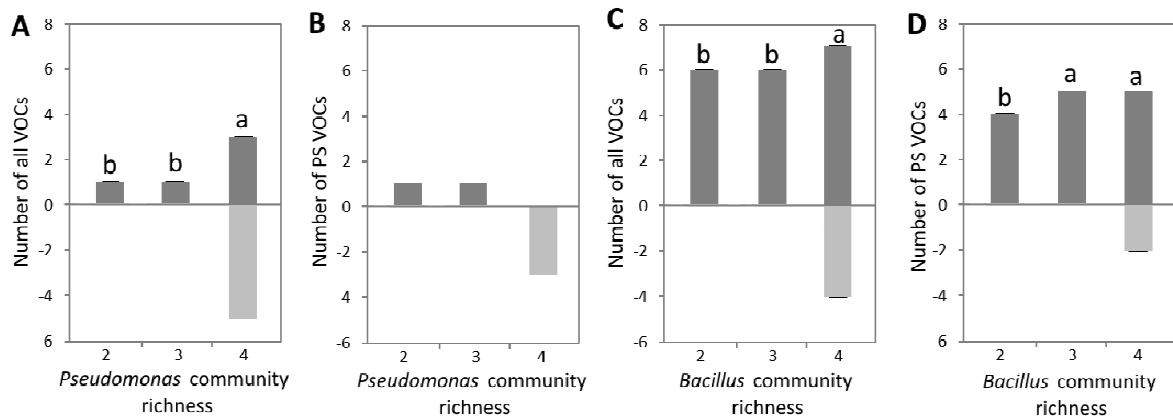


**Fig. S7:** The relationship of relative amount and number of volatile organic compounds (VOCs) produced by *Bacillus* strains with VOC-mediated pathogen suppressing and plant growth promoting activity. The relationship of VOC-mediated pathogen suppression with the relative amount (A) and number (B) of pathogen suppressing VOCs and the relationship of VOC-mediated plant growth promotion with the relative amount (C) and number (D) of plant growth promoting VOCs. Each data point represents each replicate.



**Fig. S8:** Pathogen suppression (**a, b**) and plant growth promotion activity (**c**) of volatile organic compounds (VOCs), at different concentrations, produced by *Pseudomonas* and *Bacillus* strains at different richness levels. The VOCs that showed pathogen suppression and plant growth promotion are presented here. Error bars denote for standard deviation based on three measurement replicates and different letters above bars show significant differences for each VOC at level  $P < 0.05$  according to Tukey's test.

EFN = Ethanone 1-(2-furanyl)-; HMB = 1-Hydroxy-4-methylbenzene; NM = Naphthalene 1-methyl; UM = Undecanal 2-methyl; BHT = Butylated hydroxy toluene; HAD = n-Hexadecanoic acid; PMEP = Phenol 4, 4-(1-methylethylidene) bis-



**Fig. S9:** Effect of bacterial community richness on the production of novel volatile organic compounds (VOCs). Number of all novel VOCs (A) and pathogen suppressing (PS) VOCs (B) produced and not produced by *Pseudomonas* strains at richness levels 2, 3 and 4 compared to richness level 1. Number of all novel VOCs (C) and pathogen suppressing (PS) VOCs (D) produced and not produced by *Bacillus* strains at richness levels 2, 3 and 4 compared to richness level 1. Error bars indicate the standard deviation based on three measurement replicates. Different letters show significant differences at  $P < 0.05$  based on Tukey's test. The production of novel plant growth-promoting VOC was not found by both genera. The dark gray bars show number of novel VOCs produced while light grey bars show number of VOCs not produced by bacterial strains at richness levels 2, 3 and 4 compared to richness level 1.