

The Win–Win Effects of an Invasive Plant Biochar on a Soil–Crop System: Controlling a Bacterial Soilborne Disease and Stabilizing the Soil Microbial Community Network

Sheng Wang ^{1,2,3}, Lei Wang ^{1,2,3}, Sicong Li ^{1,2,3}, Tiantian Zhang ⁴ and Kunzheng Cai ^{1,2,3,*}

¹ College of Natural Resources and Environment, South China Agricultural University, Guangzhou 510642, China; wangsheng@stu.scau.edu.cn (S.W.); kishi218@163.com (L.W.); 2021lsc@stu.scau.edu.cn (S.L.)

² Key Laboratory of Tropical Agricultural Environment in South China, Ministry of Agriculture and Rural Affairs, South China Agricultural University, Guangzhou 510642, China

³ Guangdong Provincial Key Laboratory of Eco-Circular Agriculture, South China Agricultural University, Guangzhou 510642, China

⁴ College of Horticulture, South China Agricultural University, Guangzhou 510642, China; 17863608557@163.com

* Correspondence: kzcai@scau.edu.cn; Tel.: +86-20-38297175

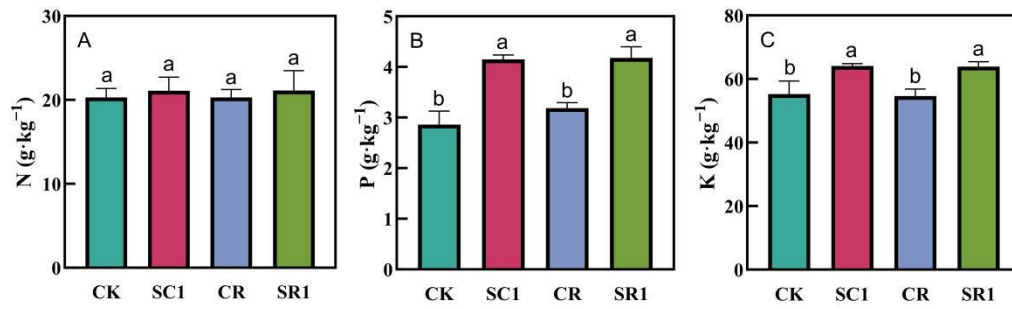


Figure S1. Effects of invasive plant biochar treatments on N(A), P(B) and K(C) uptake in tomato plants. CK, SC1 represent 0%, 1% biochar application without pathogen inoculation, respectively; CR, SR1 represent 0%, 1% biochar application with pathogen inoculation, respectively. All values are presented as the mean \pm standard error ($n = 3$). Different letters in treatments indicate significant differences ($P < 0.05$).

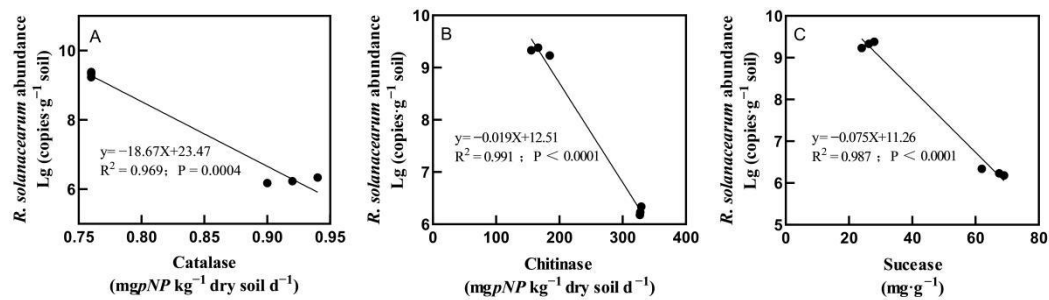


Figure S2. Correlation analysis of soil enzyme activities and the abundance of *R. solanacearum* in soil. Catalase (A), Chitinase (B), Sucrase (C).

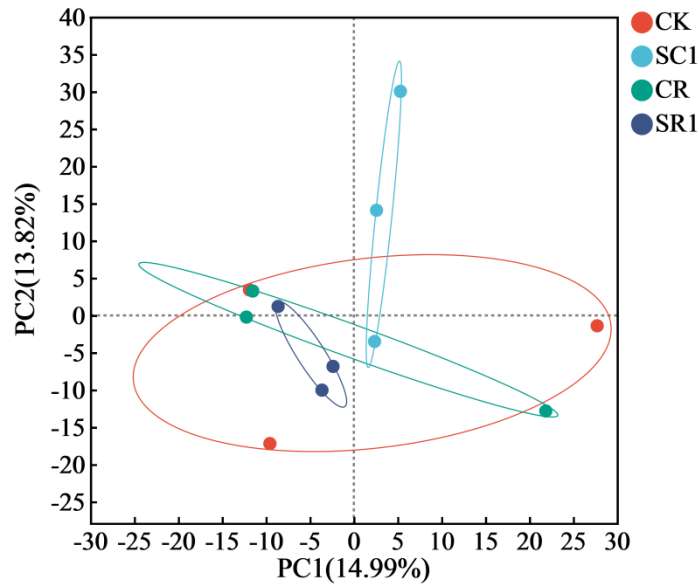


Figure S3. Effects of invasive plant biochar treatments on soil bacterial community structure. CK, SC1 represent 0%, 1% biochar application without pathogen inoculation, respectively; CR, SR1 represent 0%, 1% biochar application with pathogen inoculation, respectively.

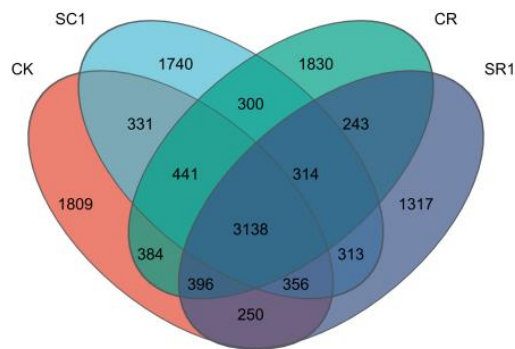


Figure S4. Effects of invasive plant biochar treatments on soil microbial diversity. CK, SC1 represent 0%, 1% biochar application without pathogen inoculation, respectively; CR, SR1 represent 0%, 1% biochar application with pathogen inoculation, respectively.

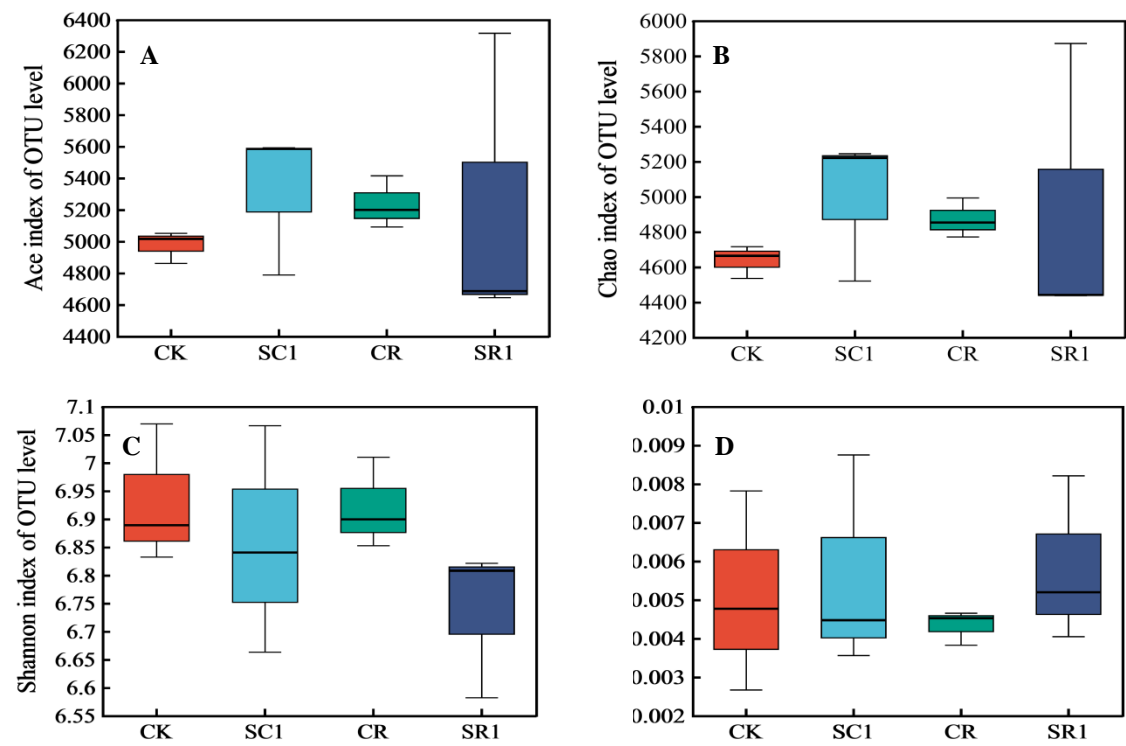


Figure S5. Effects of invasive plant biochar treatments on soil microbial diversity. Ace index (**A**), Chao index (**B**), Shannon index (**C**), Simpson index (**D**). CK, SC1 represent 0%, 1% biochar application without pathogen inoculation, respectively; CR, SR1 represent 0%, 1% biochar application with pathogen inoculation, respectively. All values are presented as the mean \pm standard error ($n = 3$).