

Cover letter

Dear editor,

We would like to submit the enclosed manuscript for publication in the "MDPI-plants journal (Special Issue entitled "Biochemical Responses of Horticultural Crops to Abiotic Stresses"), and the manuscript has not been submitted for publication elsewhere. Thank you very much for paying attention to our research and working.

This paper is a full-length research articles, which is total 17 pages, including 9 figures. The manuscript by **Longfei Zhao, Yajun Xu, Xuezhen Huang, Li Xi, , Weiyi Song, Jingya Yang** was entitled "**Effects of two endophytic bacteria on SOD and CAT activities in soybean seedlings under salt stress in old Yellow River basin in eastern Henan Province, China**", it is the original work of the authors. The work described has not been submitted elsewhere for publication, and all authors listed in this paper have seen the manuscript and approved to submit to this journal.

Corresponding author of this paper is **LongFei Zhao, Li Xi** the address: **College of Biology and Food, Shangqiu Normal University, Key Laboratory on Agricultural Microorganism Resources Development of Shangqiu, Henan, 476000, PR China.** Tel.: +86 370 3157688. E-mail: hnzhaolongfei@163.com; xili_0808@163.com

In this manuscript, it was of great practical significance to repair the toxicity of salt stress environment to soybean seedlings and maintain the balance between agricultural production and ecological environment in the Yellow River valley of China. 'Xudou 20' was used as the experimental material, a large-scale planting variety in the old Yellow River basin. Endophytes 131 and 137 isolated from soybean root nodule were taken as the research objects, and the soybean plants were cultivated by pot culture in intelligent artificial incubator. Salt stress group, bacteria suspension group and control group were set up to study the effects of inoculation treatments on the activities of superoxide dismutase (SOD) and catalase (CAT) of soybean seedlings under different NaCl stress. The results showed that when inoculated with endophyte 131 bacterial suspension and cultured for 14 days, the SOD activity was the highest (14.89 $U \cdot g^{-1} \cdot FW$) at the salt concentration 50 $mmol \cdot L^{-1}$. When inoculated with 131 bacterial suspension

(2:1) and cultured for 28 days, the SOD activity reached the highest ($0.94 \text{ ug}^{-1}\text{FW}$) at the salt concentration of $50 \text{ mmol}\cdot\text{L}^{-1}$, and the CAT activity amounted to the highest ($1910 \text{ U}\cdot\text{g}^{-1}\cdot\text{min}^{-1}$). The 16S rDNA sequencing and phylogenetic analysis showed that the most similar strain of strain 137 was *Bacillus cereus*, and the most similar strain of strain 131 was *Enterobacter ludwigii*. Therefore, the activities of SOD and CAT in soybean seedlings inoculated with endophytes 131 and 137 increased at different degrees under salt stress, which could effectively alleviate the damage of salt stress environment to plants, and thus improve the stress resistance of plants.

Thank you again for your work and we look forward to hearing your favorable reply to the manuscript.

Best Regards.

Yours sincerely,

LongFei Zhao

2025/1/11