

Figure S1. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the growth of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 season. **(A)** Leaf area per plant (dm²), **(B)** Root length (cm), and **(C)** Root diameter (cm) during the 2020/2021 season, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

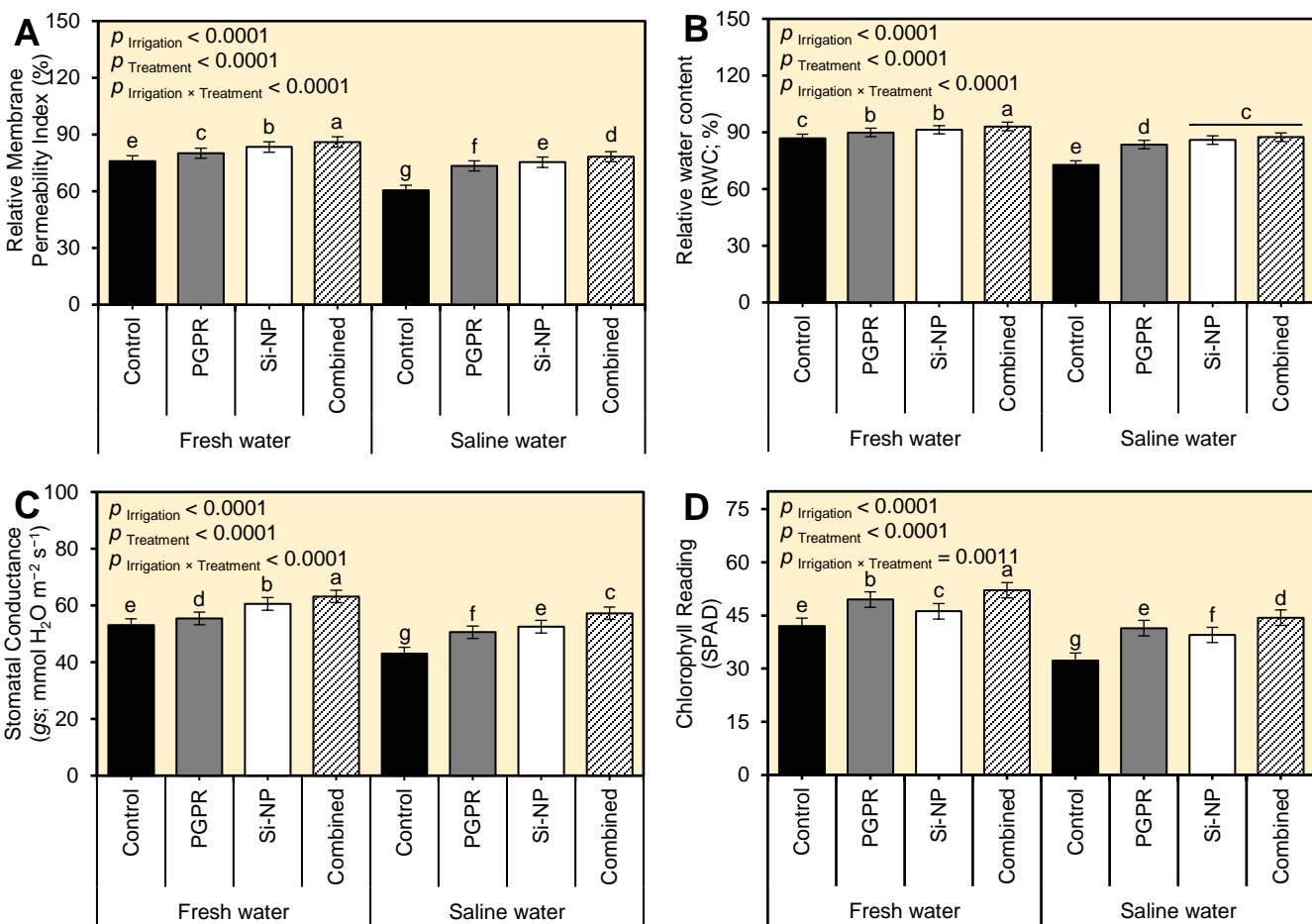


Figure S2. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the water relations and chlorophyll reading of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. (A) Relative membrane permeability index (RMPI), (B) relative water content (RWC), (C) stomatal conductance (gs), and (D) chlorophyll reading (SPAD) during 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

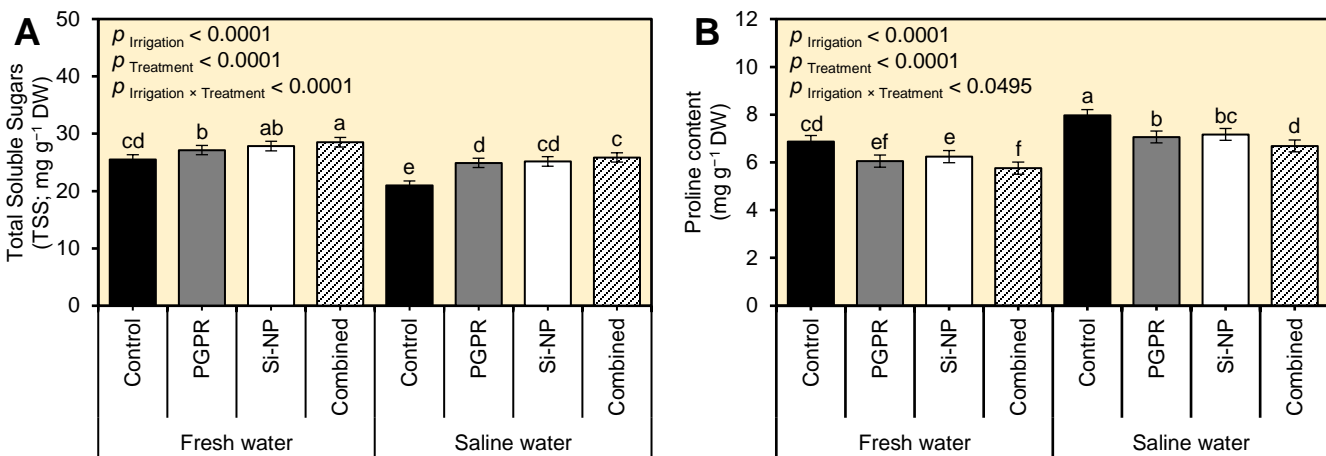


Figure S3. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the biochemical response of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. **(A)** Total soluble sugars (TSS; mg g⁻¹ DW), and **(B)** Proline content (mg g⁻¹ DW) during the 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

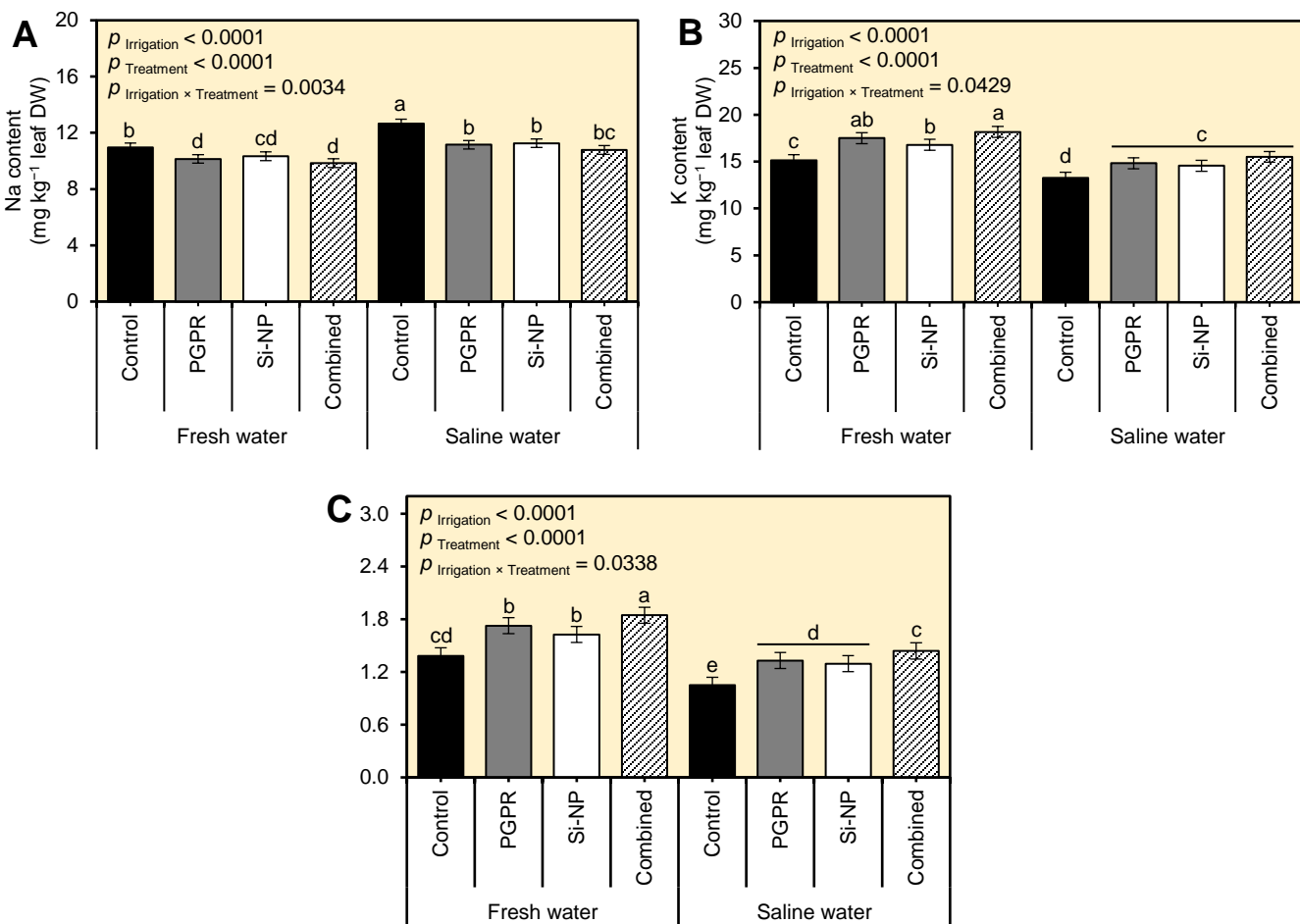


Figure S4. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the water relations and chlorophyll reading of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. **(A)** Na⁺ content (mg kg⁻¹ leaf DW), **(B)** K⁺ content (mg kg⁻¹ leaf DW), and **(C)** K⁺/Na⁺ ratio during 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

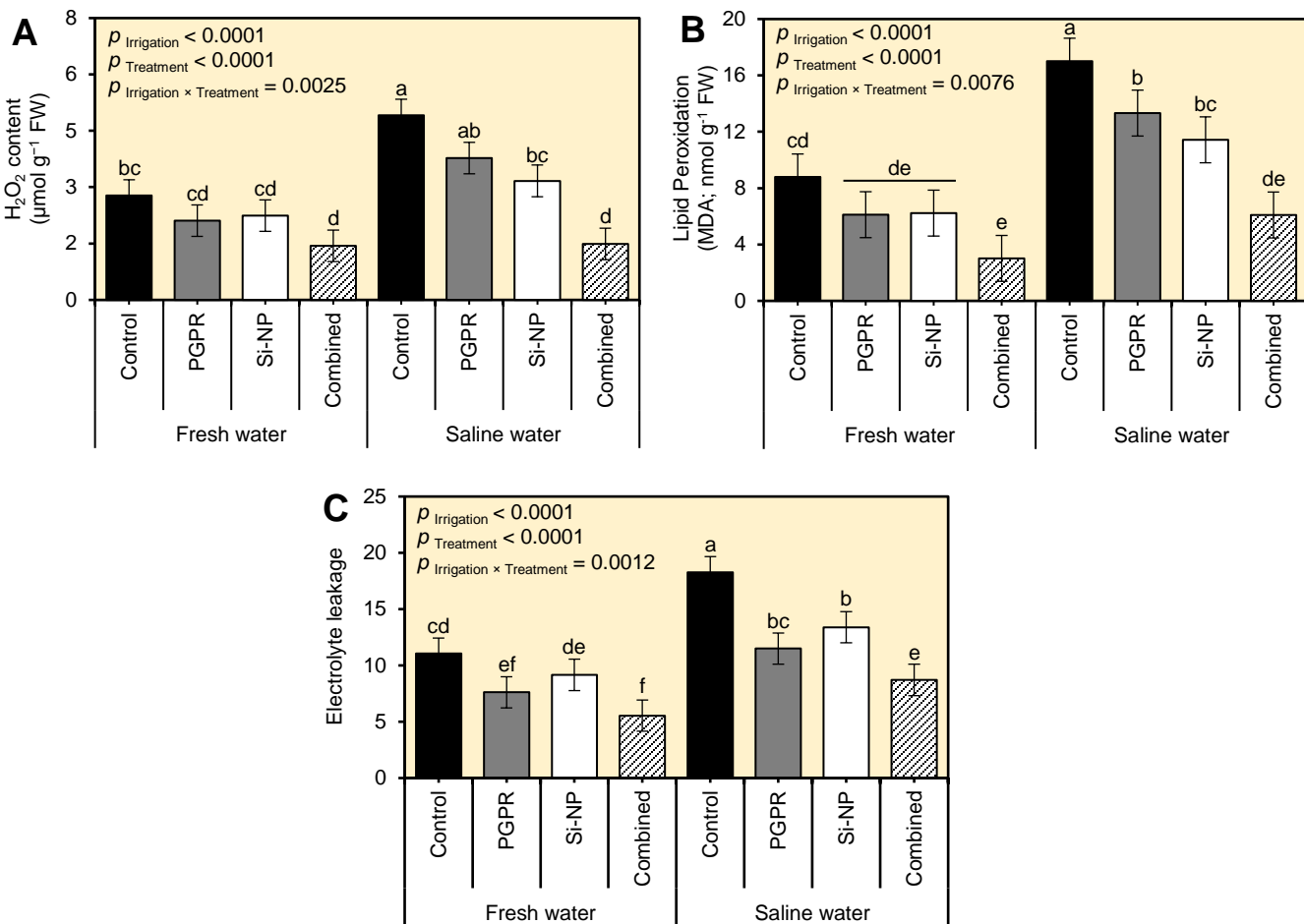


Figure S5. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the water relations and chlorophyll reading of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. **(A)** H_2O_2 content ($\mu\text{mol g}^{-1}$ FW), **(B)** Lipid Peroxidation (MDA; nmol g^{-1} FW), and **(C)** Electrolyte leakage (EL; %) during the 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

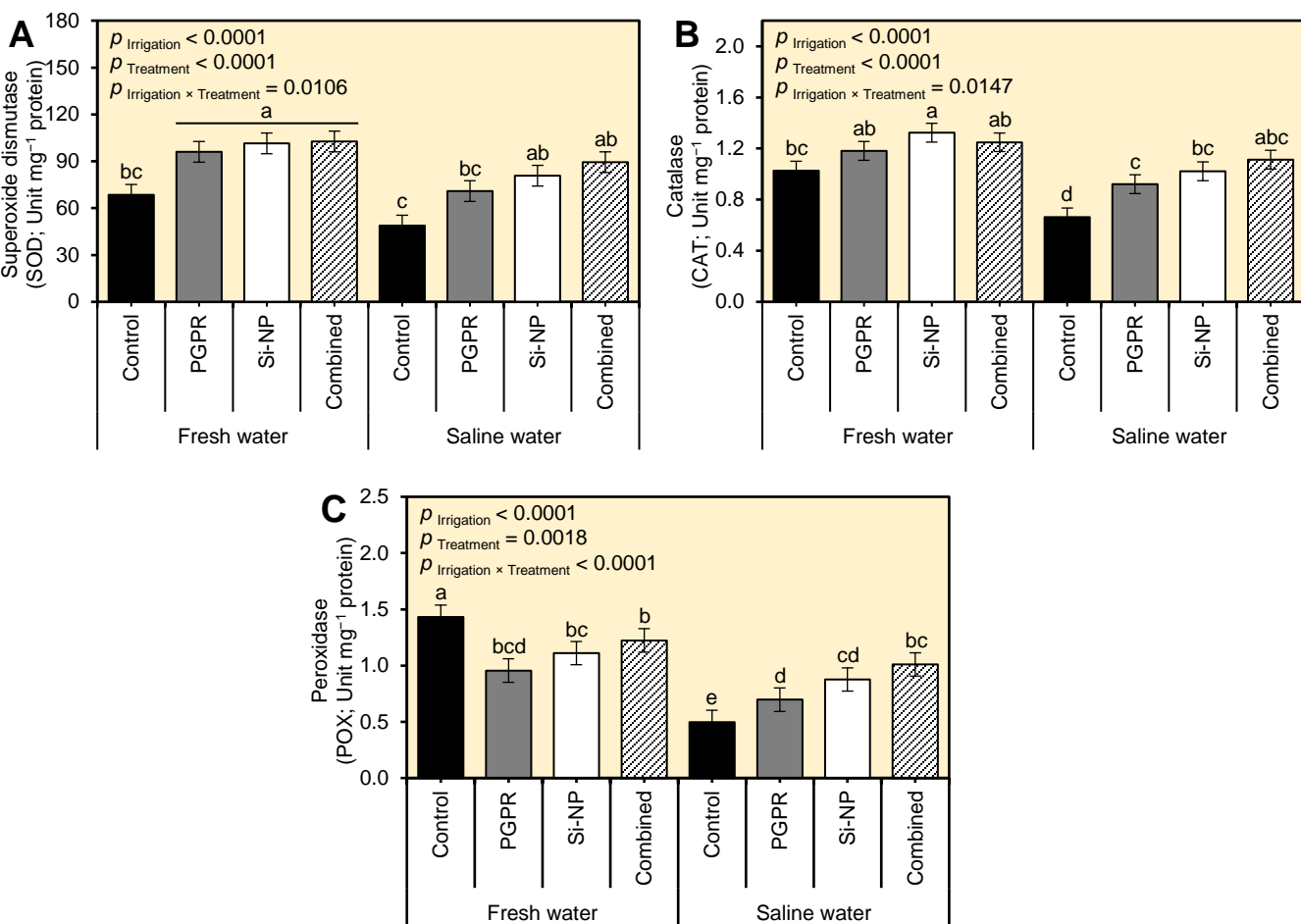


Figure S6. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the water relations and chlorophyll reading of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. (A) Superoxide dismutase (SOD; Unit mg^{-1} protein), (B) Catalase (CAT; Unit mg^{-1} protein), and (C) Peroxidase (POX; Unit mg^{-1} protein) during the 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).

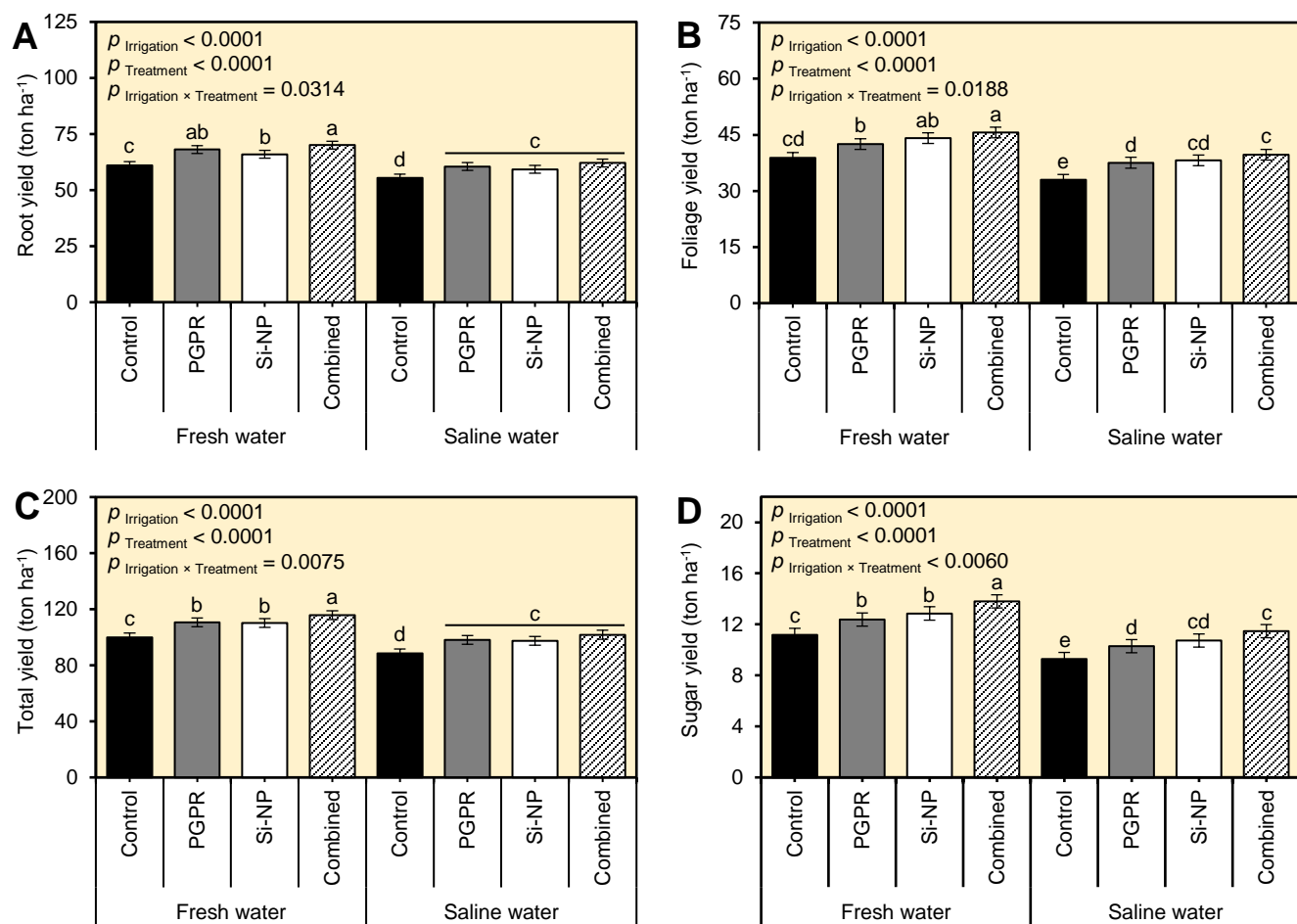


Figure S7. Effect of seed inoculation with PGPR and/or Si-NP foliar application on the water relations and chlorophyll reading of sugar beet plants grown in salt-affected soil and subjected to saline water irrigation during the 2020/2021 seasons. (A) Root yield (ton ha⁻¹), (B) Foliage yield (ton ha⁻¹), (C) Total yield (ton ha⁻¹), and (D) Sugar yield (ton ha⁻¹) during the 2020/2021 seasons, respectively. Data presented are the means \pm standard deviation (mean \pm SD) of three biological replicates. Different letters signify statistically significant differences between treatments according to Tukey's HSD test ($p_{\text{Irrigation} \times \text{Treatment}} \leq 0.05$).