

## SUMMARY

The present study aimed to investigate the impact of rootstock properties on the performance of grafted plants under salt-stress conditions. The results showed that the root length (cm) and density, root hairs, and root surface area of the rootstock are important factors in regulating salt tolerance in grafted plants. A healthy root system can enhance plant growth and productivity by producing more cytokinin and transporting water to the shoots. The experiment showed that salinity significantly decreased the hair number in non-grafted seedlings, while the root volume and length (cm) was larger in the seedlings grafted onto Hikyaku rootstock. Salinity increased  $\text{Na}^+$  concentration (mg/g dw) in root, stem, and leaves, but  $\text{Na}^+$  accumulation (mg/g dw) was less in grafted seedlings than non-grafted. Moreover, grafted seedlings onto Hikyaku accumulated more  $\text{K}^+$  (mg/g dw) than non-grafted, and salinity significantly decreased  $\text{K}^+$  concentration (mg/g dw) in the root. The SPAD value significantly decreased in non-grafted seedlings exposed to saline conditions, but Hikyaku rootstock was less damaged than Taibyuu rootstock and non-grafted seedlings. These findings suggest that grafting can prolong photoinhibition in the presence of salt stress.