

# Evaluation of chilling stress in three commercial kiwifruit cultivars (Hayward, Golden and Red)

Ebadollah Jahanifar\*,

In order to Evaluation of chilling stress in three commercial kiwifruit cultivars (Hayward, Golden and Red) the experiment was carried out as a factorial three-factorial randomized block design with three replications. The first factor was kiwifruit cultivars that included three cultivars Hayward, Golden and Red, the second factor was 3 levels of chilling [including: b1) 4 °C, b2) -6 °C and b2) -16 °C] and the third factor was applied to three phenological stages of kiwifruit cultivars including: dormant buds, swelling buds and Fruit set. The evaluated traits included Na, K, Ca, Mg, electrolyte leakage, EC and proline. The results of this study showed that Ca, Mg, EC, electrolyte leakage index and proline content of fertilized fruits were the highest and at dormant of buds, swelling Buds were not statistically significant. According to the results, the highest amounts of Ca, EC and proline were obtained at -6 °C. The results also showed that the highest proline content and the lowest electrolyte leakage were related to Golden and Hayward cultivar, as increasing the leakage increased the sensitivity to chilling, so it can be concluded that Golden cultivar was more resistant to chilling. The data obtained "Cultivars×chilling ×Phenological Stage" showed that the highest electrolyte leakage was obtained under "Red × -16 °C × Fruit set" and the lowest electrolyte leakage was obtained to the treatment "Golden × 4 °C × dormant buds" and "Golden × -6 °C × swelling buds". The highest proline content was related to "golden × -16 °C × Fruit set" and the lowest proline content was obtained "Hayward × 4 °C × swelling buds".

**Keywords :** proline, fertilized fruits, phenological, leakage, electrical conductivity

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