

Turkish Journal of Agriculture and Forestry

Turkish Journal



of

Agriculture and Forestry

Amelioration of Chilling Injuries in Watermelon Seedlings by Abscisic Acid

Ahmet KORKMAZ

Gaziosmanpasa University, Faculty of Agriculture, Department of Horticulture, 60240,
Tokat - TURKEY

 [Keywords](#)
 [Authors](#)



agric@tubitak.gov.tr

[Scientific Journals Home Page](#)

Abstract: A greenhouse study, designed in a randomized complete block design with five replications, was carried out at Clemson University, Clemson, SC, USA, in the spring of 1997. The objective of the study was to investigate whether abscisic acid (ABA) would mitigate chilling damages in the watermelon, a chilling-sensitive plant. 'Crimson Sweet' [*Citrullus lanatus* (Thumb) Matsum. & Nakai.] watermelon seedlings were grown in a greenhouse with a temperature regime of 25°C (day) and 20°C (night). Five-day-old seedlings were sprayed with 10^{-4} M cis, trans-abscisic acid 15 hours prior to being exposed to $1.5 \pm 0.5^\circ\text{C}$ for 24 hours in a dark refrigerator. One and two weeks after the chilling exposure, seedlings were visually inspected and rated in order to estimate the extent of chilling injury, and their shoot and root fresh and dry weights were determined. As indicated by higher injury rating values, chilling caused significant visual damage on the plants that were not sprayed with ABA. Plants that were not treated with ABA had significantly lower shoot and root fresh and dry weights compared to plants that were sprayed with ABA prior to chilling exposure. Although the application of ABA did not protect the seedlings completely against chilling injury, chilling tolerance in cold-sensitive plants can be increased with the application of ABA or its analogs.

Key Words: watermelon, *Citrullus lanatus*, chilling injury and abscisic acid

Turk. J. Agric. For., **26**, (2002), 17-20.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Agric. For., vol.26,iss.1.](#)