

S2.18. CAN PACLOBUTRAZOL IMPROVE THE FREEZING TOLERANCE OF KOCHIA SCOPARIA?

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There are some evidences that applications of triazoles may improve plant cold hardiness. Although, *Kochia scoparia* is known as a weed species, but it is considered as a forage crop in harsh environment particularly in saline conditions. The experiment was performed with application of different concentrations of paclobutrazol (0, 10, 20 mg per liter) before freezing temperatures (0, -3, -6, -9, -12 and -16°C) on seedlings of *Kochia (Kochia scoparia)* in controlled conditions. Soluble sugar, proline, total phenol, photosynthetic pigments and DPPH radical scavenging activity was measured before freezing. Cell membrane stability and lethal temperature 50 based on electrolyte leakage percentage (LT_{50el}) after freezing and survival and regrowth of the plants three weeks later also evaluated. Results showed that electrolyte leakage percentage increased with temperature reduction up to -12°C. All plants were alive up to -9°C and in lower temperatures (e.g. -12°C) plant mortality was increased significantly. Chlorophyll a, Chlorophyll b, DPPH radical scavenging activity and plant survival rates increased with increasing paclobutrazol concentration. On the other hand proline, soluble carbohydrates, total phenols concentration and electrolyte leakage percentage decreased with increasing paclobutrazol concentration. Therefore, application of paclobutrazol improved freezing tolerance in *Kochia* plants.