



**RESPONSE OF LIPID PEROXIDATION AND ANTIOXIDANT SYSTEM OF
NICOTIANA TABACUM L. SEEDLING UNDER CHILLING STRESS**

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ABSTRACT

Chilling stress is one of primary constraints to tobacco production in many parts of the world. Three genotype *Nicotiana Tabacum L.* Seedling, Yunyan 87 (YY87), Msk326 and Yunyan 85 (YY85) were used to study response of lipid peroxidation and antioxidant system under chilling stress. The results indicated that the rate of O₂- production in leaves of three cultivars significantly declined at short-term (2-4 d) chilling, and happened different change at 6d chilling for different cultivars. The malondialdehyde (MDA) contents and electric conductivities presented increasing at 2-4 d chilling treatments for YY87 and YY85 while that were similar to level of control seedling for K326. Superoxide dismutase (SOD) activities of YY87 remained similar to that of control plants while SOD activities of K326 and YY85 took reverse change. Catalase (CAT) and peroxidase (POD) activities of YY87 and YY85 enhanced under the chilling stress, and reached to remarkable difference under 6 d chilling stress; CAT activities of K326 were the maximum with 5 to 7°C for 4 d and POD activities of K326 had a prominent decline under 2 d cold stress and increased significantly after that. Except glutathione (GSH) of YY87 at 6d chilling, the contents of ascorbic acid (ASA) and glutathione (GSH) were significantly higher in leaves of others treatments comparing with that of controls. According to these changes, we concluded K326 is tolerant to chilling and easy to raise strong seedling while YY85 and YY87 is much susceptible to chilling.