World Academy of Science, Engineering and Technology
International Journal of Biotechnology and Bioengineering
Vol:9, No:01, 2015

Relation between Low Thermal Stress and Antioxidant Enzymes Activity in a Sweetening Plant: Stevia Rebaudiana Bert

Authors : T. Bettaieb, S. Soufi, S. Arbaoui

Abstract : Stevia rebaudiana Bert. is a natural sweet plant. The leaves contain diterpene glycosides stevioside, rebaudiosides A-F, steviolbioside and dulcoside, which are responsible for its sweet taste and have commercial value all over the world as sugar substitute in foods and medicines. Stevia rebaudiana Bert. is sensitive temperature lower than 9°C. The possibility of its outdoor culture in Tunisian conditions demand genotypes tolerant to low temperatures. In order to evaluate the low temperature tolerance of eight genotypes of Stevia rebaudiana, the activities of superoxide dismutase (SOD), ascorbate peroxidase (APX) and catalases (CAT) were measured. Before carrying out the analyses, three genotypes of Stevia were exposed for 1 month at a temperature regime of 18°C during the day and 7°C at night similar to winter conditions in Tunisia. In response to the stress generated by low temperature, antioxidant enzymes activity revealed on native gel and quantified by spectrophotometry showed variable levels according to their degree of tolerance to low temperatures.

Keywords : chilling tolerance, enzymatic activity, stevia rebaudiana bert, low thermal stress
Conference Title : ICBBB 2015 : International Conference on Bioscience, Biotechnology, and Biochemistry
Conference Location : Paris, France
Conference Dates : January 23-24, 2015