Patamaporn Yodchimma 2014: Evaluation of Antioxidant Content in Sugarcane Hybrids under NaCl Solution. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D.Agr. 146 pages.

Antioxidant contents were evaluated in two months sugarcane seedling of 18 sugarcane immersing in NaCl solutions under nursery condition. The two experiments were conducted in this study. The first experiment used hybrids from five crosses, each cross had two hybrids immersing in eight concentrations of NaCl solutions for 48, 72, 96 and 120 hr and the second experiment used hybrids from six crosses, each cross had three hybrids immersing in 0.2 and 0.4% (w/v) of NaCl solutions for 48 and 72 hr at Cane and Sugar Research and Development Center, Kasetsart University. Split plot in CRD with four replications having treatments of immersing in NaCl solutions as main plot and sugarcane hybrids as sub plot was used. Antioxidant content was evaluated by ferric thiocyanate method. The results of the frist experiment revealed the almost same level of antioxidant content of sugarcane immersing for 72-120 hr in 0-1.0% of NaCl solutions, while antioxidant content of sugarcane immersing for 48 hr were different depened on concentrations of NaCl solutions. The second experiment showed the significantly lower antioxidant content in seedling after immersing in 0.2% NaCl for 72 hr compared to the other methods of immersing in NaCl. In comparing among the crosses, the frist experiment showed large difference of antioxidant contents between reciprocal crosses of two pairs while non-significantly differences were observed in both two pairs of reciprocal crosses. In comparing crosses having different male parents, the large difference between cross were observed in seedling immersing in 0.8 and 1.0% of NaCl solutions, while in second experiment but significantly difference were observed in four crosses having different male parents in which cross having Kamphaeng Saen 98-024 as male parent had higher antioxidant contents than the other three crosses. The response of each cross in antioxidant contents to NaCl of the first experiment showed about the same level of antioxidant content in five crosses in which the highest antioxidant content was observed in seedling immersing for 48 hr different from those immersing for 72, 96 and 120 hr which had about the same level of antioxidant contents. While significantly difference in four crosses and non-significantly difference in two crosses were observed in seedling immersing in different concentrations of NaCl concentrations and different immersing periods.

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