

Wassana Thaitavon 2014: Evaluation of Proline Content in Sugarcane Varieties under NaCl Solution . Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Rewat Lersrutaiyotin, D. Agr. 108 pages.

Proline content were evaluated in 2 month of sugarcane seedlings immersion in NaCl solution under nursery condition. The 2 experiments were conducted in this study. The first experiment used 11 sugarcane varieties immersing in 0%, 0.2%, 0.3% and 0.4% NaCl solution for 0, 24, 48 and 72 hr and the second experiment used 18 hybrids from 6 crosses immersing in 0 %, 0.4%, and 0.5 % (w/v) of NaCl solutions for 72 and 96 hr at Cane and Sugar Research and Development Center, Kasetsart University. Split-split plot in CRD with 4 replications having treatments of immersing in NaCl solutions as main plot and sugarcane varieties or hybrids as sub plot was used. The result of the first experiment revealed the different levels of proline content of sugarcane seedling immersing for different periods in different concentrations of NaCl solution. The increasing of proline content in sugarcane seedling immersing in NaCl solution which was significantly difference in lower concentrations of NaCl (0.2 % and 0.3 %). The increasing of proline content in sugarcane seedling immersing in NaCl solution was also observed, in which the highest proline content was observed in immersion for 72 hr which was significantly difference in shorter periods of immersing in NaCl solution (24 and 48 hr). In comparing 2 pairs of reciprocal crosses, significant difference of average proline content between reciprocal crosses were observed only in 1 pair in 0.4 % NaCl solution, while significant difference between reciprocal crosses were observed in both pairs in 0.5 % NaCl solution. Significantly different response of proline content to different immersing periods were observed in both 2 pair of reciprocal crosses in 0.4 % NaCl solution, but non-significantly different response were observed in both pairs of reciprocal crosses in 0 and 0.5 % NaCl solution. In comparing 5 crosses having Kamphaeng Saen 94-13 as female with different male parents, significantly difference of proline content were observed in 0.4 % NaCl solution, but non-significantly different immersing periods were observed in all crosses (6 crosses) at 0.4 % NaCl solution, but were observed only in 3 crosses at 0.5 % NaCl solution and were not observed in any cross at 0 % NaCl solution.

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Student's signature

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Thesis Advisor's signature