LEAF POTASSIUM CONTENT AS AN INDEX OF ADAPTATION TO DROUGHT TOLERANCE IN NATURAL RUBBER

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To find out whether potassium accumulation is more in drought tolerant accessions/clones of rubber (*Hevea brasiliensis*) and whether its concentration is high in accessions/clones during stress period, studies were conducted in selected clones and germplasm accessions. In the first experiment, leaf samples from mature trees were collected from a clone evaluation trial in the traditional rubber growing region of Kerala. In the second experiment, leaf samples of young natural rubber plants from already identified drought tolerant and susceptible wild accessions and hybrid clones grown in a drought prone area were assessed during pre-stress, stress and post-stress period. Significant differences in K content in leaves were recorded between genotypes in both experiments. RRII 430, a known drought tolerant clone recorded high K content in the leaves in both experiments. There was significantly higher K content in leaves in drought tolerant germplasm accessions than susceptible accessions. The leaf K concentration was high during stress compared to pre-stress and post-stress period in almost all accessions/clones. Five accessions/clones *viz*. MT 4788, MT 43, RO 2153, RRII 430, RRII 414 were identified as potential drought tolerant clones based on K content of leaves. High leaf K concentration in proven drought tolerant wild accessions/clones and also during drought stress, indicates high leaf K as an indication of adaptation to drought stress in *Hevea.* Hence, high leaf K concentration can be used as a screening tool for drought tolerance along with other physiological/ biochemical/parameters molecular.

Key words: Drought tolerance, *Hevea brasiliensis,* Clones/accessions, Leaf potassium concentration

INTRODUCTION

Drought tolerance is a key trait for increasing and stabilizing productivity in dry areas worldwide. Increasing intensity and frequency of dry period in many parts of the world due to global warming and changing climate make the agriculture production of any crop more challenging (Huang *et al*., 2014). Evolving drought tolerant and climate resilient varieties is important for land and resource management to sustain productivity in these areas. Drought tolerance in plants is mainly through osmoregulation, potassium (K) accumulation for stomatal movement and protective role of K^+ in plants under drought stress has been well documented (Wang and Guo, 2013). Osmoregulation or osmotic adjustments refers to active accumulation of

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