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SEASONAL VARIATIONS IN YIELD AND ASSOCIATED BIOCHEMICAL CHANGES IN RRII 400 SERIES CLONES OF *HEVEA BRASILIENSIS*

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Variation in yield and associated biochemical changes were studied in five newly evolved RRII 400 series clones during peak yielding and low yielding stress (summer) seasons and compared with the popular check clone RRII 105. A significant reduction in dry rubber yield was observed in all the clones during the stress period compared to peak yielding season. Metabolism of carbohydrates and activities of antioxidant enzymes showed significant variation between seasons. Significant clonal variations were also observed in the case of latex ATP, C-serum thiols and SOD during the stress season. Clones RRII 422, RRII 430 and RRII 414 showed higher ATP concentration in latex, C-serum thiols, invertase and SOD during stress season. RRII 429, RRII 417 and RRII 105 showed very low SOD, thiols and invertase activity in C-serum during this period. The present study indicates that among the clones studied for yield attributes, RRII 422 followed by RRII 430 and RRII 414 may be more tolerant to stress situation than other clones. The significance of these biochemical parameters are discussed in relation to yield obtained during the peak yielding and stress seasons.

Keywords: Antioxidant enzymes, Invertase, Rubber yield, Yield depression.

INTRODUCTION

Latex production by rubber tree varies round the year depending upon the environmental conditions. Yield depression during stress period is of particular importance, because this limits the annual productivity of the crop. Latex harvesting is done throughout the year in the traditional rubber growing areas and the peak crop yielding period is from September to November and low yielding (stress) period is from February to April which is often considered as a stressful summer period. During stress situations, different factors contribute to yield reduction. Lower rubber yield during stress period is a combined effect of defoliation (wintering), refoliation during January/February and the subsequent summer stress during March-April months. Latex production is generally reduced at low soil moisture levels prevalent in summer months.

Several studies have established that at low soil moisture levels, rate and duration

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