

## MORPHOLOGICAL CHANGES IN YOUNG PLANTS OF *HEVEA BRASILIENSIS* INDUCED BY PACLOBUTRAZOL

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This study was carried out to investigate the effect of paclobutrazol, a gibberellin synthesis inhibitor in young rubber plants and standardise its optimum concentration to develop better root system. Paclobutrazol treatment in young rubber (*Hevea brasiliensis*) plants resulted in short and compact plants having dark green leaves, with more fibrous root development and improved root-to-shoot ratio. Plants of *Hevea* clone RRII 429 were treated with 0, 50, 100, 250, 500 and 750 mg active ingredient of paclobutrazol per plant as soil application. Three months after treatment the leaves showed increased chlorophyll (25.9%) and carotenoid (33.6%) contents over control. The height increment in paclobutrazol (50 mg) treated plants was significantly lower than control plants of same age, whereas, the girth increment was significantly higher (10.9%) in the treated plants. Paclobutrazol treatment remarkably increased root dry weight (maximum of 132 per cent with 50 mg) and root-to-shoot ratio. The results indicated that paclobutrazol at a concentration of 50 mg was optimum for more fibrous root development without any significant changes in stem girth and leaf number. The modified root system may likely be an advantage to young *Hevea* plants during drought.

**Keywords:** Growth retardant, *Hevea*, Paclobutrazol, PBZ, Root morphology

### INTRODUCTION

Young *Hevea* plants are developed through bud grafting and a grafted plant comprises a root system contributed by the stock plant and the shoot system by the scion. Vigorous stocks with better root system can increase the vigour of the scion resulting in reduction of the immaturity period and increased yield of the scion (Dijkman, 1951; Combe and Gener, 1977) and vigorous scions induce more growth in the root system (Dijkman, 1951). In the present scenario of changing climate,

drought situations are common occurrence in non-traditional as well as traditional rubber growing regions in India. Soil moisture deficit coupled with high temperature adversely affects the survival and growth of young rubber plants (Jacob *et al.*, 1999). Development of suitable stocks with well-developed root system is helpful to survive the plants under such unfavourable conditions (Combe and Gener, 1977).

The regulation of plant growth with synthetic plant growth regulators has