

EFFECT OF HYDROGEN CYANAMIDE AND ROCK PHOSPHATE ON SPROUTING AND EARLY GROWTH OF BROWN BUDDED STUMPS OF HEVEA

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In a nursery experiment, the effect of the growth hormone, hydrogen cyanamide in two concentrations viz., 0.5% and 1.0% with and without rock phosphate application on bud sprout and scion growth of brown budded stumps of *Hevea* clone RR11 105 was evaluated. It was observed that a combination of 1.0% hydrogen cyanamide with 25 g rock phosphate increased early sprouting and consequently plant height, number of leaves, number of leaf whorls, biomass and number of usable plants at 2-3 leaf whorl stage. Application of rock phosphate induced sprouting of more buds.

Key words: Bud induction, Growth regulator, *Hevea brasiliensis*, Hydrogen cyanamide, Rock phosphate.

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INTRODUCTION

Early sprouting of buds and vigorous growth of scion are essential for the proper establishment and growth of budded *Hevea* plants. Poor establishment of plants can lead to high casualty in the field necessitating replacements, resulting in lack of uniformity and delayed growth. The use of synthetic plant regulators alone or in combination with fertilizers to induce sprouting and vigorous growth in *Hevea* has not so far been explored.

Cyanamides are described as effective bud sprout inducers for horticultural trees like kiwifruit (Linsley-Noakes, 1988), peach (Gianfagna, 1989), apple (Krisanapook *et al.*, 1995). The use of hydrogen cyanamide for enhancing early bud break in Pusa 'seedless' grapes has been reported (Amberger, 1984; Shikhamany and Reddy, 1989). An investigation was undertaken to study the possibility of using hydrogen cyanamide (Dormex SKW-marketed by M/s, SKW, Trostberg, W. Germany), rock phosphate and a combination of both for inducing early and uniform bud break in brown budded stumps of *Hevea* and accelerating growth of the scion.

MATERIALS AND METHODS

The experiments were carried out at the experiment station of the Rubber Research Institute of India at Kottayam, Kerala. The budded plants used in the experiment were produced by budding seedling stocks of 11-12 months growth with brown buds taken from the clone RR11 105. The budded plants were uprooted, the stem cut back and the roots pruned appropriately to prepare the budded stumps. Aqueous solutions of 0.5% and 1.0% of hydrogen cyanamide prepared in distilled water were applied on the bud of each stump by the cotton swab method for 1 hour at room temperature (32°C). Treated budded stumps along with untreated control were planted in polybags. A polybag nursery experiment was conducted in RBD with 3 replications and plot size of 19 plants. For the treatments involving rock phosphate, 25 g of the fertilizer (mussoorie rock phosphate) of mesh size 100 was incorporated into the soil in each polybag. Six treatments were included viz., 0.5% Dormex, 1.0% Dormex, 0.5% Dormex + rock phosphate, 1.0% Dormex + rock phosphate, rock phosphate alone, and absolute