EFFECT OF CLONE ON *IN VITRO* AXILLARY BUD PROLIFERATION OF *Hevea brasiliensis* (Muell. Arg.)

by

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ABSTRACT

Nodal explants from four clones of *Hevea brasiliensis* , RRIC 100, RRIC 102, RRIC 121 and RRIC 130 were used in order to see any differences among them for axillary bud proliferation. Nodal segments from unselected seedlings, grown under the same conditions in the glass house were used as the control material in this experiment. When the medium was supplemented with 2 mg l^{-1} kinetin, 1 mg l^{-1} BAP and 0.2 mg l^{-1} NAA, axillary buds of seedlings were elongated with good leaf growth with compared to clonal materials. Similarly, when the WPM was supplemented with 0.02 mg l^{-1} Thidiazuron , 0.2 mg l^{-1} BAP and 0.2 mg l^{-1} NAA, the proliferation of axillary buds of seedlings was observed. About 30 - 40 propagules were produced from a single axillary bud of seedlings when the explants were maintained for 12 weeks on the above medium .

However, when the cytokinin concentration of the medium, was increased, elongation of axillary buds of clonal materials were observed. The maximum elongation of axillary buds of clonal materials were seen on WPM medium supplemented with 7.5 mg l^{-1} 3.75 mg l^{-1} , 0.2 mg l^{-1} NAA. and 2 mg l^{-1} GA_3. This medium was also incorporated with 100 ppm water soluble PVP and 5 mg l^{-1} $AgNO_3$. The good leaf growth was also observed in RRIC 102 on this medium .

In order to find out any differences between juvenile and clonal materials, proteins in young shoot stems of above materials were extracted and SDS - Polyacrylamide Gel Electrophoresis method was used to separate them. It was observed, the three proteins (molecular weights are 25 k Da, 17 k Da and 5 k Da) present only in seedlings. It was also shown, two proteins (molecular weights are 22 k Da and 9 k Da) present in four clones but absent in seedlings.

The phenolic compounds present in the young shoot stems of above clones and seedlings were also detected . The total phenolic content in those materials was measured and the polyphenolic compounds were separated by using the Thin Layer Chromatography. The higher amount of phenolic compounds in clonal materials were observed with compared to the seedlings.

The TS and LS sections of young shoot stems of above mentioned clones and seedlings were observed under the light microscope. A significant difference in shape of protophloem cells and number of cells with lignified, cutinized suberized or chitinized celwalls in the cortex, among seedlings and clonal materials were observed.