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Effect of foliar application of plant growth regulators on growth and yield of potato seed tubers propagated from micro plantlets on soilless solid media in greenhouse

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ABSTRACT : In the present study, effect of foliar application of plant growth regulators on growth and yield of potato seed tubers cv. KUFRI CHIPSONA 3, grown from micro plantlets, on soil-less solid media in greenhouse conditions, were evaluated. Out of seven treatments studied, six included plant growth regulators, of which, two were plant growth enhancers (GA₃, NAA), four were plant growth retardants (Paclobutrazol, Triacantanol, Ethrel and Chlormequat chloride-CCC) and one control (water spray). Treatments were designated, namely, T₀ control (water spray), T₁ GA₃ (0.0036 ppm), T₂ paclobutrazol (100 ppm), T₃ triacantanol (0.5 ppm), T₄ NAA (100 ppm), T₅ ethrel (250 ppm) and T₆ CCC (500 ppm) as foliar application on 30 DAP (days after planting) old crop plants. Results indicate that the treatment with T₅ ethrel (250 ppm) was significantly effective in altering crop phenotype, chiefly, in terms of plant growth parameters like crop height (dwarf phenotype, 61.1cm vs. control, 110.2cm), main shoot diameter (5.8cm vs. 4.2cm), number of tuber per plant (3.4 vs. 2.6) and total yield of tuber [g per block] (534.6g vs. 246g in controls) in comparison to T₀ control-water spray. Application of Ethrel (250 ppm) at 30 DAP is recommended on micro plantlets generated crop plants, grown in soil-less solid media cultivation in green house condition, for increased yield of potato seed tubers.

KEY WORDS : Plant growth regulator, Plant growth enhancers, Plant growth retardants, Potato seed tubers, Harvest index

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