

Title Effects of hinikitiol, pacleobutrazol, TDZ and NAA in media incorporated with or without activated charcoal on narcissus under *in-vitro* condition

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Keywords activated charcoal; hinikitiol; NAA; Narcissus; pacleobutrazol and TDZ

Abstract

To investigate the potential *in vitro* bulblet production of narcissus in response to different concentrations of Hinokitiol (2-Hydroxy-4-isopropyl-cyclohepta-2, 4, 6-trien-1-one; 2-Hydroxy-4-(1-methylethyl)-2, 4, 6-cycloheptatrien-1-one; beta-Thujaplicin) (1, 5 and 10 ppm), Pacleobutrazol (1, 2 and 4 ppm), TDZ (1, 2 and 4 μ M) and NAA (1, 2 and 4 ppm) an experiment was conducted. Experiment was done in a randomized complete block design with 10 replications. However, 5 replications of each treatment were placed in media with activated charcoal and 5 replications in media without activated charcoal (AC) for four months. Orthogonal comparisons were also used to find the exact effects of treatments in media with or without activated charcoal. The result of experiment revealed that media incorporated with activated charcoal significantly ($P < 0.05$) produced more bulblet number and diameter, root number and length, leaf number and length than media without activated charcoal. No significant ($P < 0.05$) differences were found in callus diameter in response to media with or without activated charcoal. Pacleobutrazol at rate 2 ppm in media incorporated with AC significantly ($P < 0.05$) produced the highest bulb number which followed by 10 ppm hinokitiol. The lowest bulb number and diameter was produced by control without AC. The highest and significant root number and diameter was produced by hinokitiol and Pacleobutrazol at rates 10 and 2 ppm respectively. Pacleobutrazol at all concentrations and control without AC significantly ($P < 0.05$) decreased leaf production.