

CYTOKININS INCREASE SHOOT PRODUCTION FROM LEAF CUTTINGS OF BEGONIA

The effect of 2 cytokinins, N-6-benzyladenine (N6BA) and 6-(benzylamins)-9-(2-tetrahydro-pyranyl)-9-H-purine (PBA), on shoot production on Begonia (*Begonia nulimbafolia*) leaf cuttings was determined. The leaves were cut into 6 inch diameter discs and divided into 8 triangular sections 3 inches in length. Leaf segments were treated with the cytokinins 4 weeks after planting in germination trays of vermiculite. Roots had already been initiated as a result of treatment with 50 ppm IBA.

All treatments increased the number of shoots produced (Table I) over that of the control group. However the average shoot length was decreased with increasing levels of cytokinins. This was due to the competition among many buds which were initiated. At the higher concentrations, there were many shoots but a large percent of these failed to develop into new plantlets.

Table 1. Effects of N6BA and PBA on shoot development on leaf cuttings of *Begonia nulimbafolia*.

Treatments	Average No. Shoots	Average Shoot length (cm)	Shoots ≥ 0.4 cm	
			No.	%
Control	2.4	0.67	0.8	34
N6BA 50 ppm	5.1	1.16	3.4	64
100	7.5	0.63	4.0	53
200	7.9	0.62	3.7	47
500	14.5	0.59	3.3	23
1000	17.4	0.18	1.7	10
PBA 50	7.3	0.69	3.7	51
100	9.8	0.56	3.7	38
200	15.8	0.40	6.3	40
500	18.6	0.21	2.4	13
1000	17.8	0.22	2.0	11

Six weeks after treatment, shoots that were large enough to develop into new plantlets were determined. Best results were obtained with PBA at 200 ppm with an average of 6.3 shoots produced. This was followed by N6BA at 100 ppm with an average of 4.0 shoots per leaf cutting.

Even though all buds that were initiated failed to develop, it may be possible to excise these extra shoots and grow them aseptically to increase the productivity of each leaf.

James A. Wildern, Student
Richard A. Criley, Assoc. Horticulturist

NOTE: Research scientists from the Shell Development Company report that PBA is effective in increasing plantlet production on Peperomia leaf cuttings.