The Effect of Rooting Hormone Treatment on Tip Cuttings of Pakalana (*Telosma cordata*)

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Summary

Pakalana can be propagated from soft wood or tip cuttings under mist. Rooting hormone is not required, but when treated with 0.8% IBA rooting hormone powder (Hormex 8), it resulted in 90% rooting success and produced the highest number of roots per cutting. Growers may replicate this protocol to propagate their own plants.

Background

Pakalana, also known as Chinese violet (*Telosma cordata*), is native to Southeast Asia. It is a vining plant that grows best with trellises and fences to climb, or in pots that are raised above the ground to cascade down (Hollyer et al, 2017). Pakalana is a lei plant and is used for its flowers, ranging from greenish-yellow to orange depending on age (Figure 1). The CTAHR book "Growing Plants for Hawaiian Lei" (Hollyer et al, 2017) provides the general recommendation to propagate Pakalana via cuttings with moderate strength rooting hormone. There is no information on recommended cutting type and specific rooting hormone concentration, which is a frequent question received by Cooperative Extension. The goal of this trial was to test different rooting hormones in order to provide data-based recommendations to growers.

Figure 1. Pakalana flower (left) and lei (right). Source: Lei Poinaole Project.

Materials and Methods

This trial was located at the University of Hawai'i Urban Garden Center, in Pearl City, O'ahu. The cuttings were taken from Pakalana plants that were growing in pots.

The trial compared 4 treatments:

- Control (no rooting hormone)
- Hormex 3 (0.3% IBA) Rooting Powder For Moderately Easy To Root Plants
- Hormex 8 (0.8% IBA) Rooting Powder For Moderately Difficult To Root Woody Plants
- Hormex 16 (1.6% IBA) Rooting Powder For Difficult To Root Woody Plants

Each treatment included ten 10 soft-wood cuttings, with 2 to 3 nodes. Soft-wood are still green and should be flexible but mature enough to snap when sharply bent (Jauron, 2022) and included tip cuttings. The cuttings varied in sizes, approximately 6 to 9 inches in length. The base of the cutting was cut right below the lowest node and the lower leaves were removed. All cuttings were kept in water until ready to be inserted in the media. The base of cuttings in treatments with rooting hormone were dipped in rooting hormone (Figure 2) and inserted 1" deep in 6" pots. The ports were filled with 1:1 perlite to vermiculite media. The cuttings were placed on a mist bench with Netafim CoolNet nozzles. The mist frequency was set for 20 seconds every 15 minutes. A "batch cutting" was also prepared containing 49 cuttings treated with 0.3% IBA and inserted into the same 6" pot (Figure 3). Three cuttings were rooted in a water cup with no rooting hormone treatment. The trial was prepared on July 15, 2025 and the data was collected 4 weeks after treatment, on August 11, 2025. The number of roots and the length of the longest root were recorded.

Figure 2. Base of cutting dipped in rooting hormone.

Figure 3. This batch rooting has 40 tip cuttings in a 6” pot. Batch rooting can save space in the propagation bench.

Results

The statistical analysis was performed using JMP, alpha = 0.05.

Root formation was observed after 1 week in all treatments, including control (Figure 4). Vegetative growth of the different treatments were similar (Figure 5). Four (4) weeks after treatment, the treatment with 0.8% IBA rooting hormone powder resulted in the highest number of roots (Table 1, Figure 6), similar to 0.3% IBA and significantly higher than 1.6% IBA and control.

Figure 4. Visual assessment one week after treatment. Cutting with no rooting hormone (control) had root growth (left), however, roots treated with 0.3% IBA had more roots.

Figure 5. Cuttings 4 weeks after preparation. From left to right: Control, 0.3%, 0.8% and 1.6% IBA treatments.

Table 1. Number of Roots per Treatment.

Treatment		Mean
0.80%	A	14.500
0.30%	A B	8.300
1.60%	B	7.500
Control	B	5.100

Standard error = 1.6279. Means (n=10) with different letter(s) indicate significant difference between treatments based on Tukey-Kramer HSD test with p=0.05.

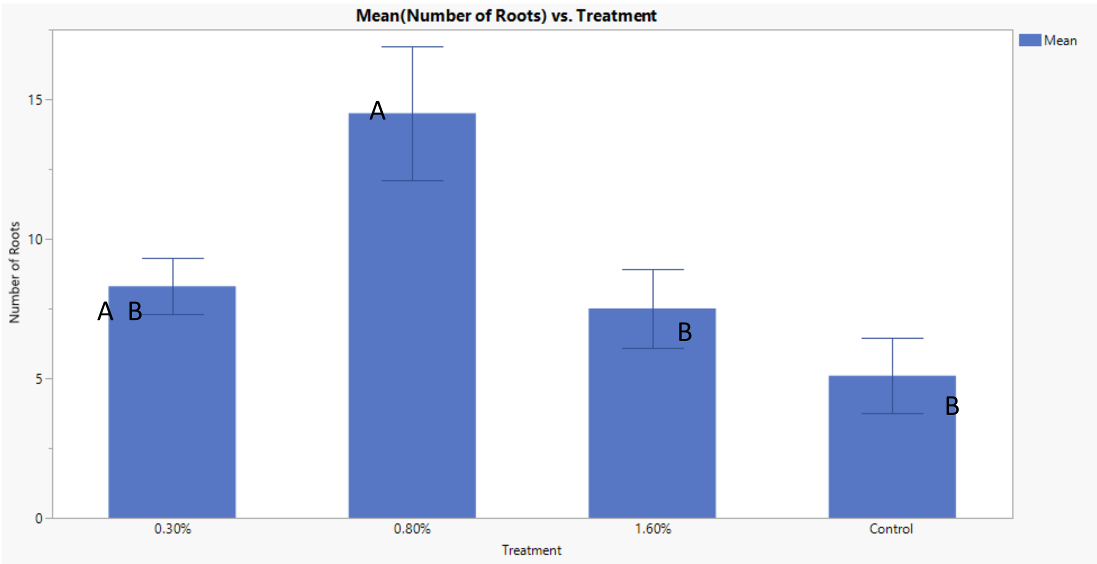

Figure 6. Number of Roots per Treatment. Means (n=10) with different letter(s) indicate significant difference between treatments based on Tukey-Kramer HSD test with p=0.05.

There was no significant different between the length of roots, probably because the root length was limited but the depth of the pots (Table 2).

Table 2. Length of Roots per Treatment

Level		Mean (in)	Std Error
Control	A	3.6250	0.31054
0.30%	A	3.5750	0.27775
0.80%	A	3.4167	0.29278
1.60%	A	3.2222	0.29278

Means (n=10) with different letter(s) indicate significant difference between treatments based on Tukey-Kramer HSD test with p=0.05.

Figures 7, 8 and 9 show the individual cuttings and their root system for the different treatments.

Figure 7. Control cuttings after 4 weeks.

Figure 8. 0.3% IBA cuttings after 4 weeks.

Figure 9. 0.8 % IBA cuttings after 4 weeks.

Batch cuttings resulted in 61% rooting rate, 22% live roots with no roots (but still with potential to root), and 16% dead cuttings (Figures 10 and 11). This indicated that batch cuttings can be a space-efficient method to root cuttings.

Figure 10. Batch cuttings are easy to separate if cuttings are rooted in a loose medium such as perlite and vermiculite.

Figure 11. Batch cutting after 4 weeks.

Cuttings rooted in water formed roots, however, the roots were very weak and broke easily (Figure 12). Rooting cuttings in water is not recommended because roots are susceptible to drying out easily after transplanting.

Figure 12. Cuttings can root in water but roots are weak and are prone to die once transplanted to pots with potting mix or soil.

Conclusion

Based on results from this trial, Pakalana soft-wood cuttings can be rooted with or without rooting hormone when kept under mist for 1 to 4 weeks. A loose and good draining growing media, such as a blend of 1:1 perlite and vermiculite, is recommended. The use of 0.8% IBA rooting hormone, Hormex 8 Rooting Powder For Moderately Difficult To Root Woody Plants, resulted in the highest number of roots under mist and is recommended when optimal rooting is desired. Batch rooting can be used to save space when rooting a large number of cuttings.

References

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