Rooting response of two *Chenopodium oahuense* selections to indolebutyric acid (IBA) application

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Introduction

Chenopodium oahuense ('Āweoweo) is a drought tolerant shrub endemic to the Hawaiian Islands.

It is found occasionally or commonly on dry coastal, forest and subalpine shrublands on all main islands.

Its tolerance to drought conditions and low maintenance requirements make it a good candidate for landscaping and container gardening.

Diversity of growth forms allow selection for specific ornamental uses. Recently, two low-growing forms (prostrate and compact) were selected for evaluation as a landscape ground cover and as a potted plant (Figure 1).

Figure 1. Growth habit of two *Chenopodium oahuense* selections with potential use as a landscape and container plant: A) compact and B) prostrate.

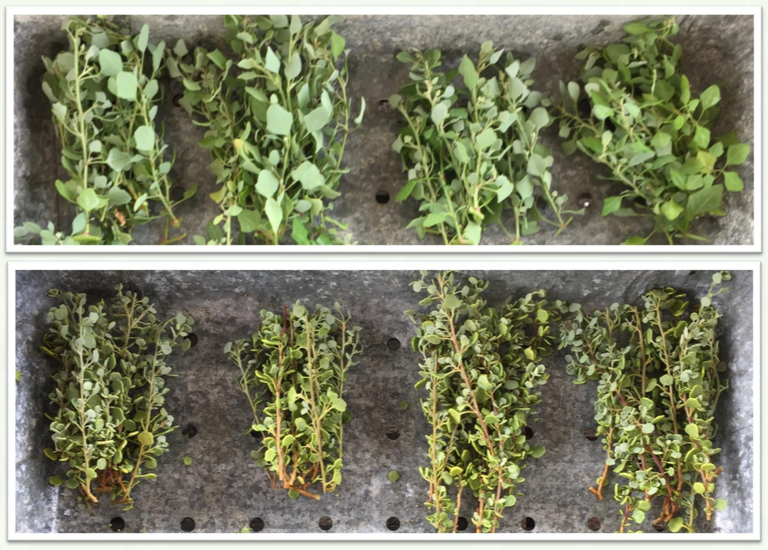
To evaluate suitability as an ornamental plant, studies on propagation by cuttings must be conducted.

Objectives

To evaluate the rooting capability of two *Chenopodium oahuense* selections.

To evaluate the utility of rooting hormone (indolebutyric acid) applications on rooting of *Chenopodium oahuense* selections.

Methods and Materials

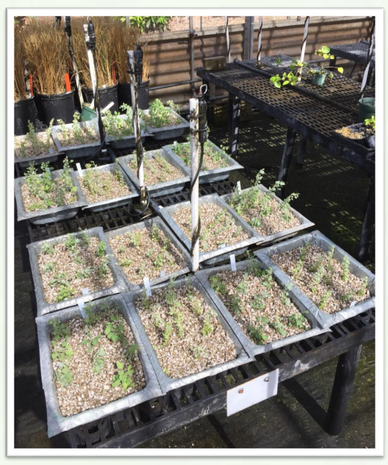


Semi-hardwood (15 cm long, branched) cuttings of both compact (top photo) and prostrate (bottom photo) selections were harvested from field grown plants.

Cuttings were treated with or without 3,000 ppm indolebutyric acid (IBA) (Hormex 3, Brooker Chemical Corp.) and planted in galvanized iron flats filled with 1:1 by volume perlite and vermiculite.

Experimental units contained 10 cuttings and were replicated four times.

Flats were allowed to root under recurrent mist (15 seconds every 5 minutes).



Percent rooting and rooting indices (1 = dead to 5 = heavy rooting) were recorded 23 days after planting.

Data was analyzed using factorial ANOVA (Analysis of Variance).

Results and Discussion

No significant differences were observed in the percent rooting and rooting index of treated and untreated cuttings, selections and its interaction (Figures 2 and 3).

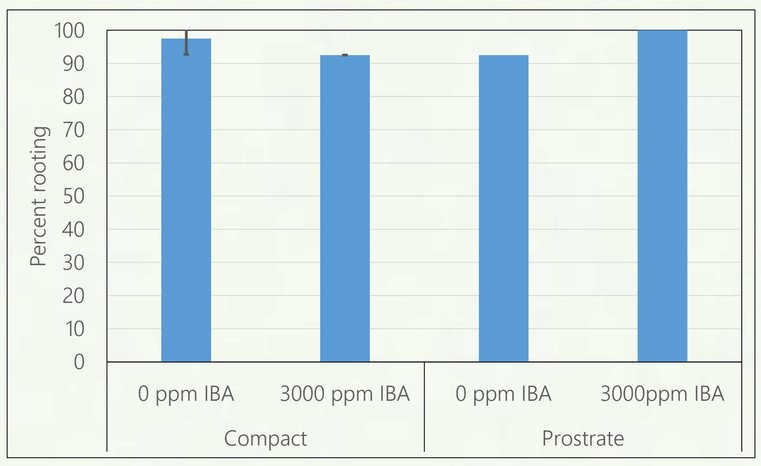


Figure 2. Percent rooting of two *Chenopodium oahuense* selections treated with or without 3000 ppm indolebutyric acid (IBA). No significant differences in rooting were observed between selections, IBA treatments and their interactions. Means and standard errors are presented (n=4).

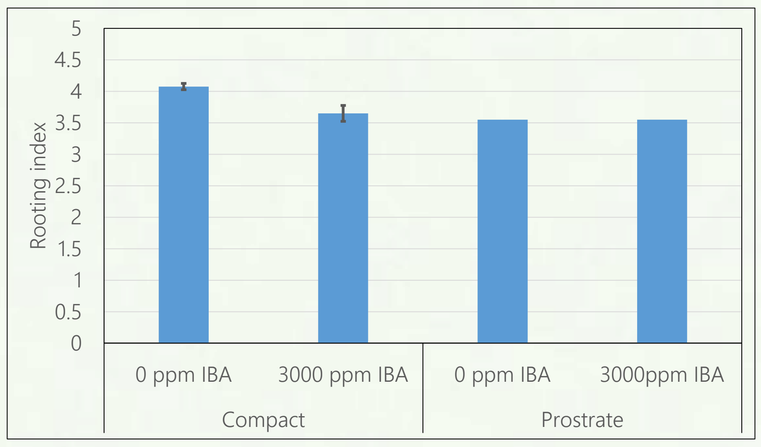


Figure 3. Rooting index (1 = dead to 5 = heavy rooting) of the compact and rp *Chenopodium oahuense* selections treated with or without 3000 ppm indolebutyric acid (IBA) (n=4). No significant differences in rooting were observed between selections, IBA treatments and their interactions. Means and standard errors are presented (n=4).

Percent rooting across in all treatments were greater than 90% and rooting indices were above 3.5 (light to medium rooting) (Figures 3 and 5).

No significant differences were observed in longest root length between rooting hormone treatments and its interaction with selection.

Length of longest root significantly differed between selections (Figure 4). The compact selection exhibited significantly longer roots (9.7 cm) compared with the prostrate selection (6.1 cm).

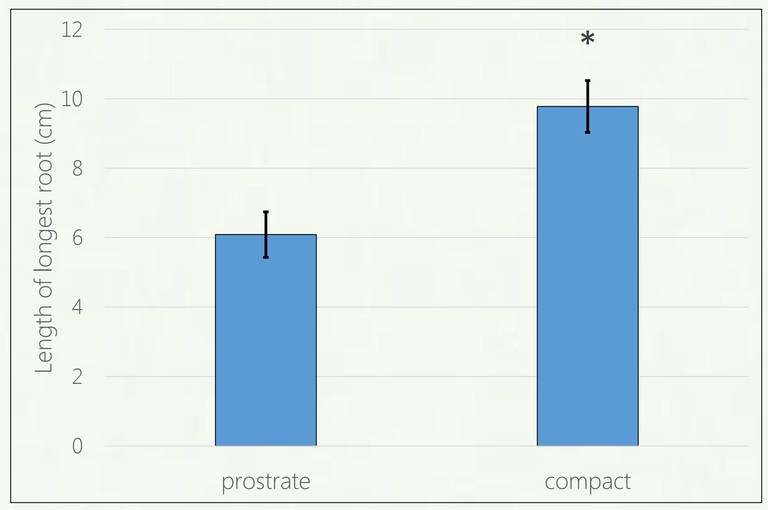


Figure 4. Length of longest root of prostrate and compact *Chenopodium oahuense* selections 23 days after planting. Means and standard errors presented are combined across rooting hormone treatments. Mean longest root length of the compact selection was significantly longer than those observed in the prostrate selection (*P*=0.0015).

Figure 5. Root and shoot growth of the compact (top) and prostrate (bottom) selections of *Chenopodium oahuense* 23 days after planting.

Conclusion

The two selections of *Chenopodium oahuense* are generally easy to root.

The compact selection exhibited longer root length in contrast with the prostrate selection.

Ease of rooting of the two *Chenopodium* selections can help facilitate its use both as a landscape and potted ornamental plant.

Acknowledgements

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