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Vegetative propagation of *Stylosanthes scabra*

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Introduction

One way to multiply genetically desirable plants in a more uniform manner is to use vegetative propagation, such as using plant cuttings. This technique multiplies a single plant into several, in an easy low-cost system (Fachinello et al. 2005), so it is useful in plant breeding. The technique may be enhanced through the use of hormonal regulators, with indolebutyric acid (IBA) being most frequently used, because of its stability in hydro-alcoholic solution, low sensitivity to biological degradation and good establishment of adventitious roots (Fachinello et al. 1995). In spite of its large-scale use for fruit production, the technique is not commonly used for forage species, such as *Stylosanthes.* We evaluated different concentrations of IBA for root establishment and initial development of *Stylosanthes scabra* cuttings.

Materials and Methods

The experiment was conducted at the Federal Rural University of Pernambuco, Recife, PE, Brazil. Treatments were 4 IBA concentrations (1, 2, 3 and 4 g/L) applied to *S. scabra* plant cuttings (20 cm long, 2.5 mm diameter), selected from a collection obtained in Bom Jardim, PE. The experiment was fully randomized with 3 replicates, and the experimental unit was a set of 15 x 500 mL plastic recipients, each with a single cutting, with a 1:3 sand:vermiculite mixture. The cuttings had flat cuts at the top, and inclined ones at the bottom, and were inserted into the respective IBA solutions to 2.5 cm from the bottom for 10 seconds, and transferred to the experimental units. At the end of the experiment (60 days), percentage of cuttings with roots, root length and root and shoot dry masses were recorded and subjected to regression analysis using ASSISTAT.

Results and Discussion

All parameters measured responded to IBA concentration according to an exponential relationship (Figure 1). Highest root length was determined at 421 cm at 1.90 g/L IBA concentration (Figure 1A), which supports the finding of Schuster et al. (2011) that root length in *Arachis pintoi* cuttings peaked at IBA concentrations about 2 g/L. Percentage of rooted cuttings was highest at IBA concentrations of 1 and 2 g/L (Figure 1B), while highest shoot dry mass (1.67 g) occurred at 2.28 g/L IBA (Figure 1C), and highest root dry mass (246 mg) at 1.71 g/L IBA (Figure 1D). Pasqual et al. (2001) also reported negative effects of higher IBA concentrations on fruit plant cuttings, possibly due to hormonal imbalances among auxins, gibberellins and cytokinins as reported by Cunha et al. (2012).

Conclusion

The 2 g/L IBA concentration seems the most promising for use in stimulating root development on cuttings of *Stylosanthes scabra* in breeding programs. Use of this technique should enhance the success rate in striking cuttings and accelerate the selection process without risks of cross-pollination contaminating selection lines.

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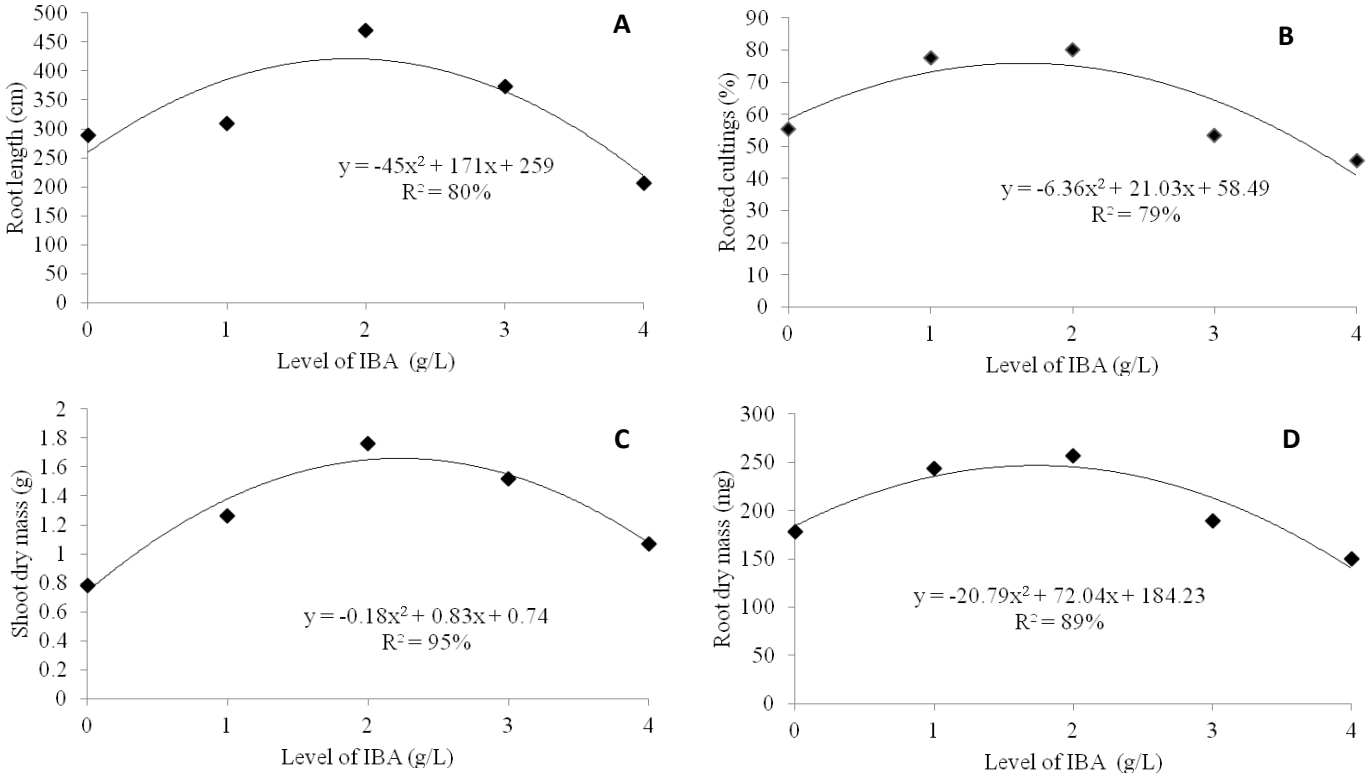

Figure 1. Effects of concentration of indolebutyric acid (IBA) on: (A) root length; (B) percentage of rooted cuttings; (C) shoot dry mass; and (D) root dry mass of *Stylosanthes scabra* cuttings.

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