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RESEARCH ON THE USE OF GREEN CUTTINGS AS AN ALTERNATIVE METHOD OF PROPAGATION OF THE SPECIES *PHLOSTACHYS EDULIS*

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Abstract

Since establishing a moso bamboo plantation represents a real challenge for farmers, both due to the high costs of purchasing planting material and the species' specific gregarious flowering, the low viability of the seeds, and their low germination rate, identifying and implementing alternative propagation methods is a constant concern. The research results highlighted that the techniques used in the propagation process through cuttings, the conditions for collecting cuttings, treatments with rooting biostimulators, and the planting technique of the cuttings had a direct influence on the rooting percentage of the cuttings as well as on the subsequent growth and development of the new bamboo plants. Cuttings with one or two nodes made from the basal area of stems with a diameter of 1 cm and planted horizontally performed the best, providing, within a relatively short period of time and under minimal input conditions, sufficient planting material for establishing new plantations.

Key words: *bamboo, biostimulation, cuttings, vegetative propagation.*

INTRODUCTION

Since bamboo flowering is gregarious, occurring at intervals of 60 to 100 years, and the plants die after flowering, a gap of approximately 2 to 3 years is created in the availability of raw material. To meet the increasing demand for bamboo as a raw material in the circular economy, there is an urgent need to expand the area occupied by this species, either by establishing new plantations or by promoting natural regeneration (Vitali & Dobrinoiu, 2020). The possibility of establishing large-scale plantations through generative means (from seeds) is limited because most bamboo species produce seeds at long intervals, from 60 to 120 years. Therefore, although this method of producing planting material is considered to be the most common method of multiplying this species, it is recommended only for establishing small-scale plantations. For large-scale production of planting material, it becomes imperative to identify and implement alternative methods of producing bamboo planting material, namely vegetative propagation, with propagation through cuttings being considered by researchers to be a fairly reliable method (Kaushal et al., 2011). Thus, Singh et al. (2004) reported a rooting percentage during the summer of 98% for stem cuttings without the addition of plant growth regulators in the bamboo species *D. asper*. Rooting in the summer season of 88% was reported for *B. nutans*, compared to the winter season, when the rooting percentage of cuttings was only 53.4% (Singh et al., 2011). Deb et al. (2016) reported that approximately 70.6% of stem cuttings planted in April responded positively, with about 9.4 shoots/nodes and approximately 15.3 roots/nodes within 6 months of planting, whereas planting the cuttings in January had a positive response of about 31%, with approximately 3.1 shoots/nodes and about 2.2 roots/nodes for the species *B. nagalandiana*. Gulabrao et al. (2012) observed that stem cuttings of *B. bambos*, *B. vulgaris*, *B. balcooa*, *D. hamiltonii*, *B. tulda*, *D. strictus*, *D. giganteus* and *B. nutans* rooted best in the spring (56.67%), followed closely by the summer season (54.58%), but less so in winter (36.67%). Thus, it is evident that the interaction between bamboo species and season is a risk factor in vegetative propagation, with summer being considered the most suitable season for propagation through cuttings of most bamboo species (Singh et al., 2006).

The effect of growth regulators also depends on the orientation of the cuttings in the growth substrate (Bhol & Nayak, 2012; Bhol & Parida, 2015). Horizontal planting of cuttings of *D. asper* treated with IBA resulted in higher rooting (65%) than vertical planting of the cuttings (55%) during the summer (Razvi et al., 2011).
The present research was undertaken with the inducing rooting of cuttings made from branch portions of the Moso bamboo species *Phyllostachys edulis*, in order to ensure the availability of material intended for the establishment of new plantations on a large scale.

MATERIALS AND METHODS

The experiment was initiated in May (2025) and finished in January (2026). It consisted of evaluating the effect of the biostimulator Radi-Stim-Solution, the type of cuttings, and the method of planting the cuttings on the rooting percentage, the number of roots and lateral branches formed on the rooted cuttings, and the vegetative development of the rooted cuttings over 9 months from the start of the experiment. For this purpose, a three-factorial experiment, in subdivided plots, with three repetitions, was designed. The experimental factors under study being the following:
Factor A - The biostimulator used, with 2 graduations:
- a_1 - Radi-Stim 3% + TurboRoot 2.5%;
- a_2 - Radi-Stim 3% + Algavell 2.5%.
Factor B - The type of cuttings, with 3 graduations:
- b_1 - cuttings made from the apical zone of the stem;
- b_2 - cuttings made from the middle zone of the stem;
- b_3 - cuttings made from the basal zone of the stem.
Factor C - The method of planting the cuttings, with 2 graduations:
- c_1 - cuttings planted horizontally;
- c_2 - cuttings planted vertically.
By combining the experimental factors included in the study, 12 experimental variants resulted (Table 1), in 3 repetitions, and the analysis and statistical interpretation of the research results were carried out according to the analysis of variance method for the probability P5%, P1%, and P0.1%.

Table1. Experimental variants tested during the research

Experimental factors tested			Experimental variants
Factor A	Factor B	Factor C	
a_1	b_1	c_1	V_1 ($a_1b_1c_1$) - apical cutting planted horizontally +Radi-Stim 3%+TurboRoot 2.5%
		c_2	V_2 ($a_1b_1c_2$) - apical cutting vertically +Radi-Stim 3%+ TurboRoot 2.5%
	b_2	c_1	V_3 ($a_1b_2c_1$) - median cutting planted horizontally +Radi-Stim 3%+TurboRoot 2.5%
		c_2	V_4 ($a_1b_2c_2$) - median cutting planted vertically +Radi-Stim 3%+TurboRoot 2.5%
	b_3	c_1	V_5 ($a_1b_3c_1$) - basal cutting planted horizontally +Radi-Stim 3%+TurboRoot 2.5%
		c_2	V_6 ($a_1b_3c_2$) - basal cutting planted vertically +Radi-Stim 3%+TurboRoot 2.5%
a_2	b_1	c_1	V_7 ($a_2b_1c_1$) - apical cutting planted horizontally +Radi-Stim 3%+Algavell 2.5%
		c_2	V_8 ($a_2b_1c_2$) - apical cutting vertically +Radi-Stim 3%+Algavell 2.5%
	b_2	c_1	V_9 ($a_2b_2c_1$) - median cutting planted horizontally +Radi-Stim 3%+Algavell 2.5%
		c_2	V_{10} ($a_2b_2c_2$) - median cutting planted vertically +Radi-Stim 3%+Algavell 2.5%
	b_3	c_1	V_{11} ($a_2b_3c_1$) - basal cutting planted horizontally +Radi-Stim 3%+Algavell 2.5%
		c_2	V_{12} ($a_2b_3c_2$) - basal cutting planted vertically +Radi-Stim 3%+Algavell 2.5%

For the preparation of the cuttings, annual stems with a diameter of 1 cm were taken from the bamboo plants, retaining from each stem the basal, median, and apical nodal areas, where a portion of stem branching 15 cm in length, respectively 2 nodes, was preserved, resulting in cuttings 10 cm long with a single stem node, used as biological material for vegetative propagation.
After shaping, the resulting cuttings were treated to stimulate the rooting process by immersing their nodal point for 12 hours in a Radi-Stim solution of different concentrations, according to the experimental protocol, with 25 cuttings selected for each experimental variant studied.
After the time scheduled for pre-treatment with biostimulants had elapsed, the cuttings were removed from the biostimulant solution, allowed to dry for 3 minutes, and then planted in prismatic vegetation pots with a volume of 3 liters in a nutrient mixture consisting of 3 parts clay to 1 part poultry compost, according to the

pre-established experimental protocol. In order to enhance the growth and vegetative development processes of the rooted cuttings, 3 treatments (immediately after cuttings planting, at 3 months after cuttings planting, and at 6 months after cuttings planting) with growth biostimulants of the TurboRoot and Algavell type were administered by moistening the nutrient substrate at a concentration of 2.5% (Figure 1).



Figure 1. Transfer of biostimulated cuttings into growing pots

Observations and measurements carried out during the study

After planting the cuttings in the growing pots, periodic observations were made regarding their vegetative state, as well as biometric measurements, in order to evaluate the influence of the experimental factors studied on the growth and vegetative development rate of the rooted cuttings obtained through propagation by the green cutting method.

Thus, from each experimental variant, at 6 and 9 months after planting the cuttings, destructive samples of rooted cuttings were taken, which were cleaned of soil, washed, and biometric measurements were performed on them regarding the rooting percentage, the number of roots formed and their average length, as well as the number of shoots differentiated on the rooted cuttings and their average length (Figures 2, 3).



Figure 2. The appearance of bamboo plants after 6 months when planting the biostimulated cuttings



Figure 3. The appearance of bamboo plants after 9 months when planting the biostimulated cuttings

RESULTS AND DISCUSSIONS

Results and discussion regarding the rooting percentage of moso bamboo cuttings

Analyzing the research results regarding the effect of the biostimulator Radi-Stim on the rooting process of branch cuttings used for vegetative propagation of the species *Phyllostachys edulis*, it is observed that there were considerable variations among the experimental variants studied (Table 2).

Thus, the rooting percentage six months after the start of the experiment recorded values ranging from 16.36% to 57.58%, with the rooting process increasing in intensity and reaching values ranging from 29.28% to 66.76% nine months after planting the cuttings in growth pots.

Table 2. The rooting rate of cuttings in the species *Phylostachys edulis*

Experimental Variants	Rooting rate after 6 month (%)	Difference (%)	Significance	Rooting rate after 9 months (%)	Difference (%)	Significance
V_1 ($a_1b_1c_1$)	21.73	-12.68	ooo	35.54	-13.68	ooo
V_2 ($a_1b_1c_2$)	16.36	-18.05	ooo	33.27	-15.95	ooo
V_3 ($a_1b_2c_1$)	37.92	3.51	***	49.53	0.31	-
V_4 ($a_1b_2c_2$)	29.33	-5.08	ooo	42.85	-6.37	ooo
V_5 ($a_1b_3c_1$)	46.57	12.16	***	58.72	9.50	***
V_6 ($a_1b_3c_2$)	35.13	0.72	**	62.87	13.65	***
V_7 ($a_2b_1c_1$)	26.74	-7.67	ooo	32.59	-16.63	ooo
V_8 ($a_2b_1c_2$)	18.39	-16.02	ooo	29.28	-19.94	ooo
V_9 ($a_2b_2c_1$)	48.93	14.52	***	57.55	8.33	***
V_{10} ($a_2b_2c_2$)	33.37	-1.04	oo	55.83	6.61	***
V_{11} ($a_2b_3c_1$)	57.58	23.17	***	66.76	17.54	***
V_{12} ($a_2b_3c_2$)	40.87	6.46	***	65.88	16.66	***
Average (Control)	34.41	Control	Control	49.22	Control	Control
	$LD_{5\%} = 0.317$; $LD_{1\%} = 0.685$; $LD_{0.1\%} = 1.119$			$LD_{5\%} = 0.532$; $LD_{1\%} = 0.863$; $LD_{0.1\%} = 1.212$		

Compared to the average experience, statistically significant differences were recorded, ranging from very significantly negative (ooo) to very significantly positive (***) among the variants, with the greatest rooting capacity being shown by cuttings made from the basal area of the stems and planted in a horizontal position in both stages of the determinations (V_{11}) (Table 2).

Results and discussions regarding the number of roots formed on bamboo cuttings after planting

The results of biometric determinations related to the number of adventitious roots developed on cuttings after the application of the biostimulation treatment and planting in growth pots highlighted quite a large variability among the experimental variants tested during the research. This biometric parameter was influenced both by the type of cuttings and the position in which they were planted after treatment with Radi-Stim Solution at a concentration of 3%.

It can thus be observed that, 6 months after planting the cuttings in the nutrient substrate, the biostimulated cuttings differentiated between 4.29 roots/cutting (V_2) and 12.27 roots/cutting (V_{11}), the number of roots increased as the bamboo rooted cuttings progressed in growth; thus, 9 months after planting, the number of adventitious roots differentiated per cutting ranged between 8.51 roots/cutting (V_1) and 14.36 roots/cutting (V_{11}), the best performing were the cuttings made from the nodal areas at the base of the stems, planted in a horizontal plane and treated with the Algavell biostimulator at a 2.5% concentration (V_{11}) in both stages of the determinations (Table 3).

Table 3. Number of roots differentiated on cuttings in the species *Phylostachys edulis*

Experimental Variants	Roots No after 6 months (No.)	Difference (No.)	Significance	Roots No. after 9 months (No.)	Difference (No.)	Significance
V_1 ($a_1b_1c_1$)	7.25	-0.50	ooo	8.51	-1.74	ooo
V_2 ($a_1b_1c_2$)	4.29	-3.46	ooo	8.93	-1.32	ooo
V_3 ($a_1b_2c_1$)	7.58	-0.17	o	10.71	0.46	**
V_4 ($a_1b_2c_2$)	6.53	-1.22	ooo	10.52	0.27	**
V_5 ($a_1b_3c_1$)	9.27	1.52	***	12.38	2.13	***
V_6 ($a_1b_3c_2$)	7.71	-0.04	-	11.63	1.38	***
V_7 ($a_2b_1c_1$)	8.23	0.48	***	10.15	-0.10	-
V_8 ($a_2b_1c_2$)	5.27	-2.50	ooo	9.37	-0.88	ooo
V_9 ($a_2b_2c_1$)	8.29	0.54	***	12.77	2.52	***
V_{10} ($a_2b_2c_2$)	7.58	-0.17	o	12.29	2.04	***
V_{11} ($a_2b_3c_1$)	12.27	4.25	***	14.36	4.11	***
V_{12} ($a_2b_3c_2$)	8.75	1.00	***	13.68	3.43	***
Average (Control)	7.75	Control	Control	10.25	Control	Control
	$LD_{5\%} = 0.087$; $LD_{1\%} = 0.195$; $LD_{0.1\%} = 0.433$			$LD_{5\%} = 0.125$; $LD_{1\%} = 0.263$; $LD_{0.1\%} = 0.754$		

Compared to the average of the experimental variants taken in the study, it is observed that, 9 months after planting, the cuttings made from the basal and median parts of the bamboo stems performed the best, showing highly significant positive differences (***) statistically (V_5, V_6,

V_9, V_{10}, V_{11} and V_{12}), regardless of their planting position, while the cuttings made from the apical part of the stems showed the weakest capacity for adventitious root differentiation after planting in the nutrient substrate, with insignificant (-) (V_7) or highly significant negative (ooo) differences compared to the average of the experiment (V_1, V_2 and V_8) (Table 3).

Results and discussions regarding the length of roots formed on bamboo cuttings after planting

Following biometrical measurements on the length of adventitious roots developed on moso bamboo cuttings after their planting in the nutrient substrate, the experimental variants in which the cuttings were treated with the biostimulator Radi-Stim Solution (3% concentration) and planted in a horizontal plane have been highlighted. In these variants, the average root length ranged between 8.63 cm (V_1) and 12.66 cm (V_{11}) after 6 months of planting, reaching lengths between 9.53 cm (V_2) and 14.49 cm (V_{11}) after 9 months from planting.

The best performance in terms of root growth rate was observed for cuttings made from the basal and middle nodal regions of bamboo stems, where root length exceeded 10 cm at 6 months after planting (V_3, V_5, V_9 and V_{11}), regardless of the growth biostimulator applied after cutting root formation (Table 4).

Table 4. Root length formed on cuttings rooted in the species *Phylostachys edulis*

Experimental variants	Roots length after 6 months (cm)	Difference (cm)	Significance	Roots lenght after 9 months (cm)	Difference (cm)	Significance
V_1 ($a_1b_1c_1$)	8.63	-0.95	ooo	9.97	-2.62	ooo
V_2 ($a_1b_1c_2$)	5.58	-4.00	ooo	9.53	-3.06	ooo
V_3 ($a_1b_2c_1$)	10.73	1.15	***	12.31	-0.28	o
V_4 ($a_1b_2c_2$)	8.62	-0.96	ooo	12.68	0.09	-
V_5 ($a_1b_3c_1$)	10.36	0.78	***	12.44	-0.15	-
V_6 ($a_1b_3c_2$)	8.78	-0.80	ooo	11.67	-0.92	ooo
V_7 ($a_2b_1c_1$)	9.33	-0.25	o	13.97	1.38	***
V_8 ($a_2b_1c_2$)	8.81	-0.77	ooo	12.35	-0.24	o
V_9 ($a_2b_2c_1$)	12.38	2.80	***	14.21	1.62	***
V_{10} ($a_2b_2c_2$)	9.27	-0.31	o	13.83	1.24	***
V_{11} ($a_2b_3c_1$)	12.66	3.08	***	14.49	1.90	***
V_{12} ($a_2b_3c_2$)	9.86	0.28	*	13.74	1.15	***
Average (Control)	9.58	Control	Control	12.59	Control	Control
	$LD_{5\%} = 0.126$; $LD_{1\%} = 0.313$; $LD_{0.1\%} = 0.725$			$LD_{5\%} = 0.212$; $LD_{1\%} = 0.374$; $LD_{0.1\%} = 0.672$		

Biometric measurements carried out 9 months after the moment of planting showed the direct influence of the type of biostimulator administered to the nutrient substrate after rooting the cuttings. With the Algavell biostimulator administered in three treatments, there the growth in length of adventitious roots, whose average length exceeded 13.74 cm, with differences recorded as highly statistically significant (***) compared to the average of the experimental variants (V_7, V_9, V_{10}, V_{11} and V_{12}), regardless of the planting method practiced (Table 4).

Results and discussions regarding the number of shoots formed on rooted cuttings

The research results regarding the influence of the experimental factors studied on the number

Of differentiated shoots on moso bamboo rooted cuttings obtained through the green cutting method demonstrated that, six months after planting, the cuttings treated with the biostimulator Radi-Stim Solution at a 3% concentration and that received additional treatments with the biostimulators TurboRoot and Algavell differentiated between 1.01 shoots/rooted cutting (V_2 and V_6) and 1.86 shoots/ rooted cutting (V_{11}), with the highest capacity for differentiation of new shoots being shown by the cuttings that benefited from the additional supply of nutrients made available to the rooted cuttings as a result of the administration of the Algavell biostimulator at a 2.5% concentration, regardless of the type of cuttings used for propagation or the planting method practiced (Table 5).

At 9 months after planting cuttings in the nutrient substrate, the number of differentiated shoots on the moso bamboo rooted cuttings ranged between 1.23 shoots/rooted cutting (V_2) and 2.69 shoots/ rooted cuttings (V_{11}), with the cuttings made from the nodal areas at the base of the stems performing the best. These cuttings, further treated with the biostimulators

TurboRoot and Algavell, showed very significant positive differences (***) compared to the experiment average (Table 5), regardless of the position in which the cuttings were planted (V_5, V_6, V_{11} and V_{12}).

Table 5. Number of shoots differentiated on rooted cuttings by species *Phylostachys edulis*

Experimental Variants	Shoots No. after 6 months (No)	Difference (No)	Significance	Shoots No. after 9 months (No)	Difference (No)	Significance
V_1 ($a_1b_1c_1$)	1.11	-0.17	oo	1.48	-0.55	ooo
V_2 ($a_1b_1c_2$)	1.01	-0.27	ooo	1.23	-0.80	ooo
V_3 ($a_1b_2c_1$)	1.12	-0.16	oo	2.27	0.24	ooo
V_4 ($a_1b_2c_2$)	1.03	-0.25	ooo	1.85	-0.18	ooo
V_5 ($a_1b_3c_1$)	1.15	-0.13	oo	2.59	0.56	***
V_6 ($a_1b_3c_2$)	1.01	-0.27	ooo	2.37	0.34	***
V_7 ($a_2b_1c_1$)	1.22	-0.06	o	1.68	-0.35	ooo
V_8 ($a_2b_1c_2$)	1.18	-0.10	oo	1.43	-0.60	ooo
V_9 ($a_2b_2c_1$)	1.62	0.34	***	2.37	0.34	***
V_{10} ($a_2b_2c_2$)	1.41	0.13	**	1.95	-0.08	oo
V_{11} ($a_2b_3c_1$)	1.86	0.58	***	2.69	0.66	***
V_{12} ($a_2b_3c_2$)	1.63	0.35	***	2.47	0.44	***
Average (Control)	1.28	Control	Control	2.03	Control	Control
	$LD_{5\%} = 0.067$; $LD_{1\%} = 0.094$; $LD_{0.1\%} = 0.209$			$LD_{5\%} = 0.025$; $LD_{1\%} = 0.063$; $LD_{0.1\%} = 0.117$		

Results and discussions regarding the height of bamboo rooted cuttings after planting the cuttings

The endogenous reserve substances present in the cuttings taken from the bamboo stems, but especially the exogenous biostimulant substances applied to the cuttings before and after planting, played a determining role in the vegetative growth and development of the bamboo rooted cuttings. Thus, 6 months after planting the cuttings, the height of the rooted cuttings resulting from cuttings planted in a horizontal plane reached average heights ranging between 19.73 cm (V_1) and 58.57 cm (V_{11}), while, by planting the cuttings in a vertical position, the height of the rooted cuttings ranged between 15.27 cm (V_2) and 54.28 cm (V_{12}), with statistically significant positive (*) and highly significant positive (***) differences compared with the average of the experimental variants tested during the research, in the experimental variants where the growth and vegetative development of bamboo rooted cuttings were stimulated by applying the biofertilizer Algaveel at a concentration of 2.5% (V_7, V_8, V_9, V_{10}, V_{11} and V_{12}) (Table 6).

Table 6. Height of bamboo plants propagated by the green cutting method in the species *Phylostachys edulis*

Experimental Variants	Plants height after 6 months (cm)	Difference (cm)	Significance	Plants height after 9 months (cm)	Difference (cm)	Significance
V_1 ($a_1b_1c_1$)	19.73	-14.62	ooo	43.35	-12.70	ooo
V_2 ($a_1b_1c_2$)	15.27	-19.08	ooo	40.19	-15.86	ooo
V_3 ($a_1b_2c_1$)	21.96	-12.39	ooo	44.37	-11.68	ooo
V_4 ($a_1b_2c_2$)	18.29	-16.06	ooo	41.03	-15.02	ooo
V_5 ($a_1b_3c_1$)	28.57	-5.78	ooo	48.31	-7.74	ooo
V_6 ($a_1b_3c_2$)	24.28	-10.07	ooo	43.18	-12.87	ooo
V_7 ($a_2b_1c_1$)	39.73	5.38	***	56.75	0.70	*
V_8 ($a_2b_1c_2$)	35.27	0.92	*	48.47	-7.58	ooo
V_9 ($a_2b_2c_1$)	50.96	16.61	***	76.49	20.44	***
V_{10} ($a_2b_2c_2$)	45.29	10.94	***	71.43	15.38	***
V_{11} ($a_2b_3c_1$)	58.57	24.22	***	83.29	27.24	***
V_{12} ($a_2b_3c_2$)	54.28	19.93	***	75.76	19.71	***
Average (Control)	34.35	Control	Control	56.05	Control	Control
	$LD_{5\%} = 0.824$; $LD_{1\%} = 1.062$; $LD_{0.1\%} = 1.326$			$LD_{5\%} = 0.565$; $LD_{1\%} = 1.093$; $LD_{0.1\%} = 1.633$		

The height of bamboo plants measured 9 months after planting the cuttings in growing pots reached values ranging from 40.19 cm (V_2) to 75.76 cm (V_{12}) as a result of using the vertical planting method for the cuttings, while under the conditions of planting the cuttings in a horizontal position, the values of this biometric parameter varied between 43.35 cm (V_1) and 83.29 cm (V_{11}), with bamboo plants obtained from cuttings taken from the basal and median parts of the stems showed the most intense growth and vegetative development rate, in the context of biostimulation with Radi-Stim at a 3% concentration and Alagavell at a 2.5%

concentration, with very significantly positive differences (***) compared to the average of the experimental variants, regardless of the planting method used (Table 6).

CONCLUSIONS

Since bamboo is a species with gregarious flowering, flowering only once during its lifetime and, after which, the plants die. Moreover, the seeds are most often not viable, which is why they cannot be used in the propagation process to produce on a large scale the plants needed for the establishment of new plantations; therefore, it is recommended to use alternative methods of plant propagation, namely the production of planting material through vegetative means.

The present research highlighted the fact that the success of using the bamboo propagation method through green cuttings is influenced by a series of external factors, such as: the type of cuttings, the method of planting the cuttings, treatments with biostimulators, and the nutrient substrate used for planting the cuttings, etc.

The results obtained during the present study demonstrated that single-node cuttings, made from the basal area of the stems, treated with the biostimulator Radi-Stim Solution (3%) and planted horizontally, recorded the highest rooting percentage compared with cuttings planted in a vertical position, both after 6 months and 9 months from the moment of biostimulation and planting in the nutrient substrate.

Against the background of stimulating the rooting process by treating bamboo cuttings belonging to the species *Phyllostachys edulis* with the biostimulator Radi-Stim solution at a concentration of 3% and by stimulating the processes of growth and vegetative development through the administration of the biostimulators TurboRoot and Algavell at a concentration of 2.5%, the cuttings taken from the basal and median nodal regions of the stems and planted in a horizontal plot displayed the highest capacity for adventitious root differentiation and the most intense rate of root length growth at both times of conducting the biometric measurements.

The greatest capacity for differentiation of new shoots was observed in bamboo rooted cuttings obtained from cuttings that benefited from the additional supply of nutrients as a result of the administration of the biostimulant Algavell at a concentration of 2.5%, regardless of the type of cuttings used for propagation and the planting method practiced, where bamboo rooted cuttings obtained from cuttings taken from the basal and median parts of the stems showed the most intense growth and vegetative development, against the background of enhancing the effect of the Radi-Stim biostimulant at 3% solution concentration, the newly formed shoots exceeded 45 cm in length 6 months after planting and over 71 cm in length 9 months after planting.

Since, to date, there are no studies regarding the propagation of the species *Phyllostachys edulis* (the only bamboo species adapted to the temperate climate) by vegetative means, and the research conducted so far has only targeted tropical bamboo species, which are characterized by much better-developed mechanical tissue, studies evaluating the suitability of this species for propagation through the cutting method can serve as a starting point for future research.

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