BIBLIOGRAPHY

MANGINGA, LYNARES P. APRIL 2013. Effect of Different Pinching Frequency on the Growth and Flowering of Potted Medinilla Species. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

This study aimed to determine the effectiveness of different pinching frequencies on the improvement of the flowering quality of three species of medinilla grown from lateral shoots which were pinched once at one month from transplanting, twice at one and two months from transplanting; and pinched thrice at one, two and three months from transplanting. The three species of medinilla grown were *M. aphelandra*, *M. multiflora* & *M. scortechenii*.

Results showed that plants of *M. scortechenii* had the highest number of laterals and leaves per plant, three months from transplanting. Unpinched plants produced the least number of leaves and laterals per plant at three months from transplanting; It also produced the lowest number of flower panicles per plant at three months from transplanting. Plants *M. aphelandra* and *M. multiflora* which were pinched thrice at one, two and three months produced the fewest flowers at three months from transplanting . However, *M. multiflora* and *M. scortechenii* which were pinched twice at one and two months from transplanting, 50% anthesis was highly significantly delayed. *M. multiflora*

produced the earlier flowering and had faster flower development in two species of Medinilla which were the *M. multiflora* and *M. aphelandra.*

Based on the findings, it is concluded that *M. aphelandra* is the best species of Medinilla flower to grow since it produced highest number of flower panicle together with *M. scortechenii* which produced more laterals and many flowers later on.

Pinching frequency to be applied is based on the purpose of the grower. If the grower wishes to produce more flowers and laterals, Pinched thrice at one, two and three months from transplanting.

RESULTS AND DISCUSSION

Initial Number of the Leaves per Plant at Transplanting

Effect of species. Significantly differences obtained on the initial number of leaves on the three species of medinilla at transplanting (Table 1). Plant *M. scortechenii* was significantly had the higher number of leaves than the other species with a mean of 87.83 leaves per plant. Plant *M. aphelandra* were counted with a mean of 53.25 leaves per plant. *M multiflora* had the lowest number of leaves with a mean of 35.17 leaves per plant.

Table 1. Initial number of the leaves at transplanting time

TREATMENT	MEAN
Medinilla Species	
M. aphelandra	53.25b
M. multiflora	35.17c
M. scortechenii	87.83a
Pinching Frequency	
Control	54.44a
Pinched once at month from transplanting	63.22a
Pinched twice at one, and two months from transplanting	60a
Pinched thrice at one, two and three months from transplanting	57.33a

CV(%)= 10.34

Means with common letters are not significantly different at 5 % level by DMRT.

Effect of pinching frequency. Table 1 shows that there were significantly differences on the characteristics were counted on the initial number of the leaves per plant (Fig.1).*M. scortechenii* had the characteristics of higher number of the leaves produce since pinching was not yet applied this species had significantly had the characteristic of higher number of leaves per plant with a means ranging from 86 to 90 leaves per plant. This means that *M. scortechenii* species had the highest number of the leaves without pinching.

Interaction effect. Statistical analysis shows that there were significantly differences characteristics were obtained on the initial number of the leaves per plant at transplanting (Fig. 1). *M. scortechenii* had the characteristics of the highest number of the leaves since pinching was not yet applied this species had shown significantly high with regards to the number of leaves which rich a means of ranging from 84 leaves to 94 leaves per plant. This was followed by *M. aphelandra* with a means ranging from 60 to 61 leaves per plant after transplanting compared to *M. multiflora* species which had the characteristics of lowest numbers of leaves from transplanting with a mean ranging from 34.33 to 41 leaves. This means that *M. scortechenii* species has the highest number of the leaves even without pinching based on the result.

Initial Height of the Plant after Transplanting (cm)

Effect of species. Highly significant differences were obtained on the initial height of the plantmeasured at transplanting time (Table 2). Plants *M. aphelandra* had the characteristic of tallest plant at transplanting with a mean of 52.88 cm. It was significantly taller compared to the height of the plants at transplanting measured from the other species of medinilla. Plants of *M. multiflora* and *M. scortenechii* had comparable initial height at transplanting with means of 28.33cm to 52.88cm.

Effect of pinching frequency.Unpinched plant had the characteristics of a longest plant since pinching was not yet applied but still had shown significantly high with regards to the number of leaves which had a mean of 40.11 cm. This was followed by treatment three with a mean of 38.72cm. The shortest plant were measured from unpiched plant with a mean of 37.33cm.

Result showed that the inherent genetic characteristics of the different species used had greatly influenced the initial height.

Interaction effect. Figure 2 shows that highly significant were obtained on the initial height per plant after transplanting as shown in table two. *Medinilla aphelandra* had the characteristics of faster growth since pinching was not yet applied but still this species had shown significantly high with regards to plant height which reached a mean ranging from 47.17cm to 58 cm plant height after transplanting compared to*M. multiflora* species which had produced shorter plants from transplanting with a mean of only 24 cm. this means that medinilla species has the fast growth characteristics even without pinching based on the result.

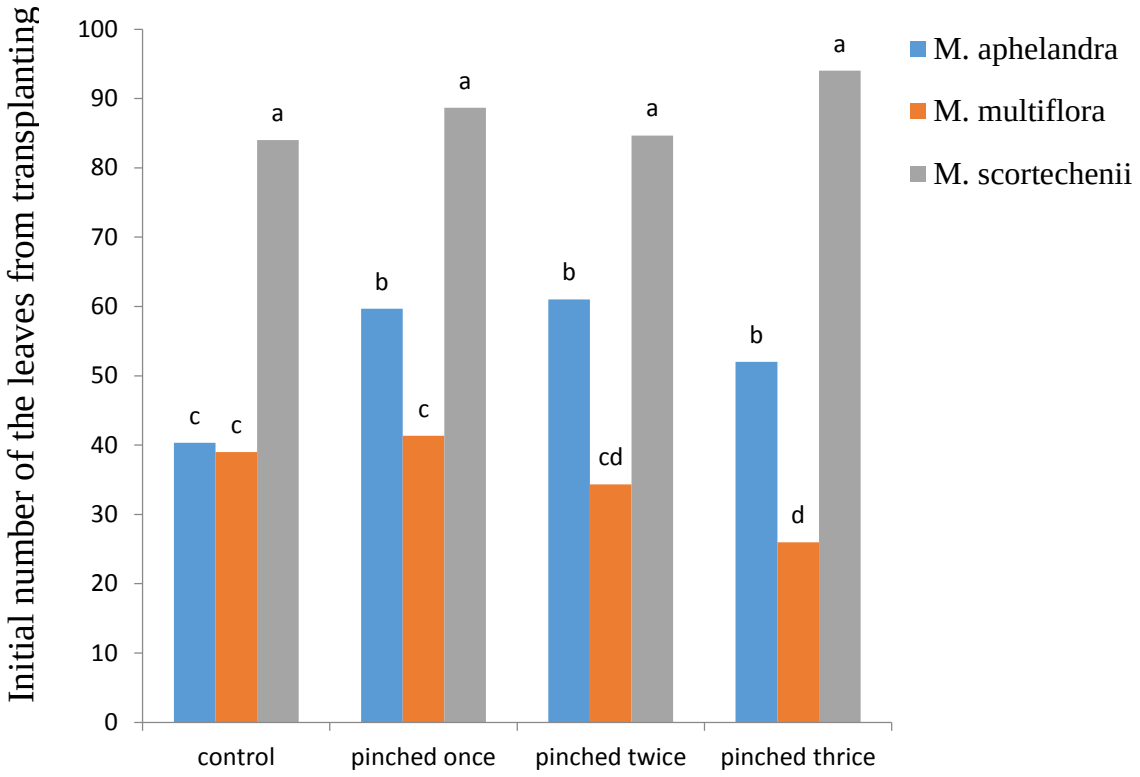

Figure 1. Initial number of the leaves at transplanting time as influenced by variety and pinching frequency. (Mean with a common letter are significantly different at 5% level by DMRT)

Table 2. Initial height of the plants at transplanting time

TREATMENT	MEAN
Medinilla Species	
M. aphelandra	52.88 a
M. multiflora	28.33c
M. scortechenii	33. 83b
Pinching Frequency	
Control	37.33
Pinched once at month from transplanting	40.11
Pinched twice at one, and two months from transplanting	37.22
Pinched thrice at one, two and three months from transplanting	38.72

CV(%)= 12.34

Means with common letters are not significantly different at 5 % level by DMRT

Initial Number of Laterals One Months from Transplanting

Effect of species. Highly significant were obtained on the initial number of laterals on the three species of medinilla after three months from transplanting (Table3). *M. scortechenii* was highly significant than the other species with the mean of 42.92 laterals. Plants *M. multiflora* were counted with a mean of 16.58 laterals. The lowest number of laterals were counted from *M. aphelandra* with a mean of 14.50 laterals, one month from transplanting.

Results showed that the inherent genetic characteristics of the different species great influence the initial number of laterals.

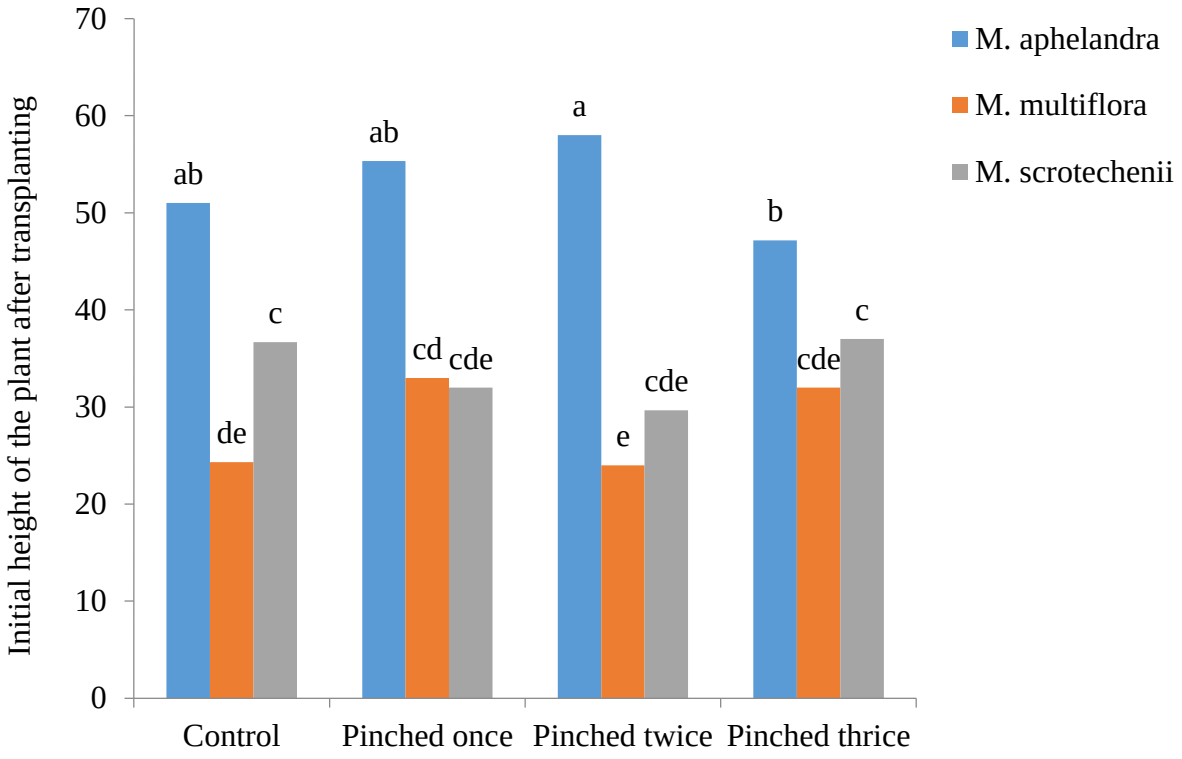

Figure 2. Initial height of the plant at transplanting as influenced by variety and pinching frequency.(Means with a common letter are not significantly different at 5 % level by DMRT)

Table 3. Initial number of laterals at transplanting time

TREATMENT	MEAN
Medinilla Species	
M. aphelandra	14.50b
M. multiflora	16.58b
M. scortechenii	42.92a
Pinching Frequency	
Control	28.00a
Pinched once at month from transplanting	24.67b
Pinched twice at one, and two months from transplanting	25.22b
Pinched thrice at one, two and three months from transplanting	20.78c

CV(%)= 10.72

Means with common letters are not significantly different at 5 % level by DMRT

Effect of pinching frequency.The different pinching frequencies highly significant affected the initial number of laterals of the three species of medinilla at one month from transplanting (Table 3). Highest number of laterals were measured from the unpinched since pinching was not yet applied but still had shown significantly high with regards to the number of laterals which had a mean of 28 laterals. However, lateral number of plant were comparable with those on treatment one and treatment two from transplanting which had the mean of 24.67 and 25.22 laterals; while the lowest number of laterals with the mean of 20.78 were obtained from those in treatment three.

Interaction effect. Figure 3shows that highly significant were obtained on the initial number of laterals at one month from transplanting per plant one month from transplanting. *Medinilla scortechenii* had the characteristics of the highest number of laterals since pinching was not yet applied but still this species had shown significantly high with regards to the number of laterals which reached a means ranging from 40.33 to 46 laterals after transplanting. This was followed by *M. aphelandra* with a means ranging 10.67 laterals after transplanting compared to *M. multiflora* species which had produced lowest number of laterals from transplanting with a mean of only 9 laterals. This means that *Medinilla scortechenii* had the highest number of laterals even without pinching based on the results.

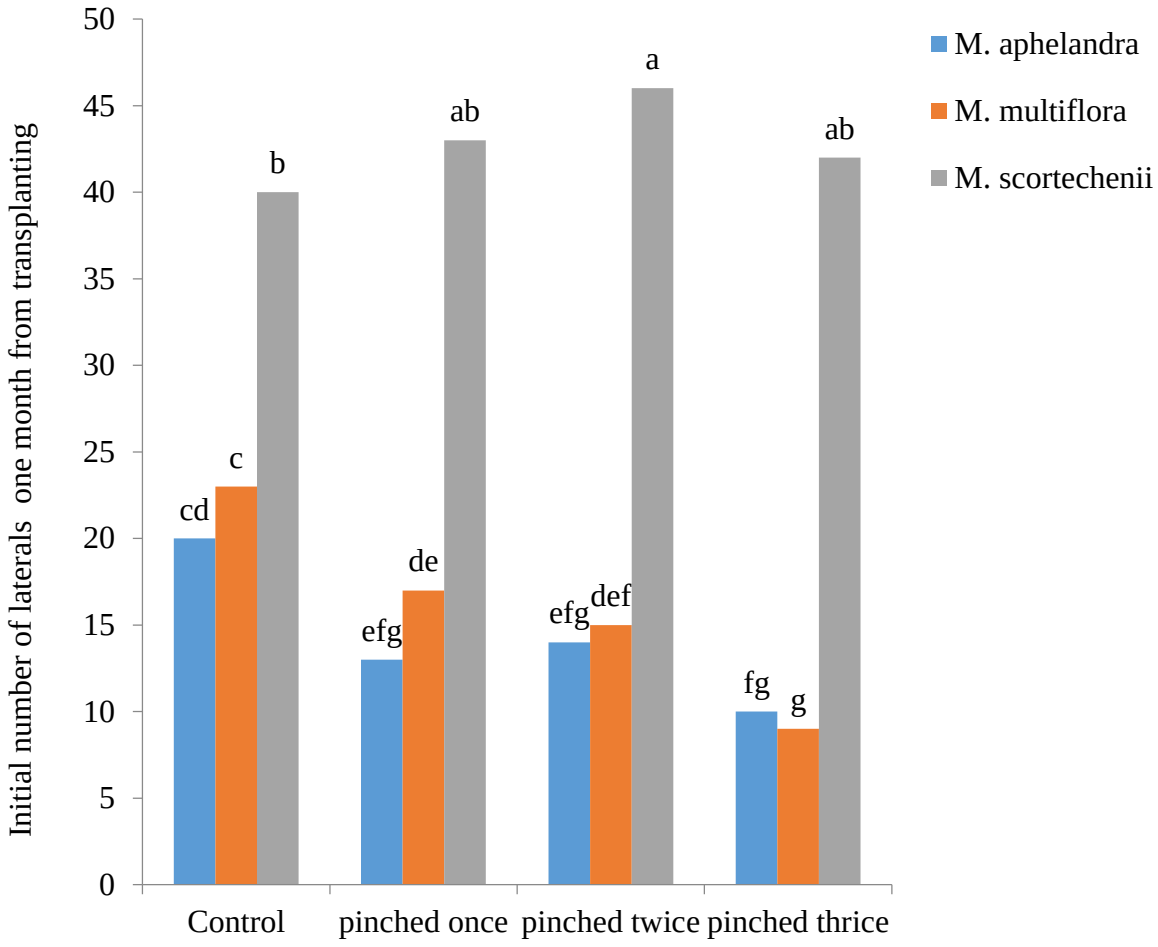

Figure 3. Initial number of laterals one month from transplanting as influenced by variety and pinching frequency. (Mean with a common letter are not significant at 5 % level by DMRT)

Final Height Three Months after Transplanting

Effect of species. Significantly differences were obtained on the final height of the three species of medinilla after three months from transplanting (Table 4).*M. aphelandra* was significantly taller than the other species with a mean height of 158.12 cm. Plants of *M.scortechenii* were short with a mean height of 111.08; while the shortest plants were measured from plants of *M. multiflora* with the mean height of only 85.00 cm three months from transplanting.

Results showed that the inherent genetic characteristics of the different species used had great influenced the final height attained at three months from transplanting.

Table 4. Final height of the plants three months from transplanting

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	158.13a
M. multiflora	85c
M. scortechenii	111.08b
Pinching Frequency	
Control	111.44b
Pinched once at month from transplanting	120.7ab
Pinched twice at one, and two months from transplanting	126.a
Pinched thrice at one, two and three months from transplanting	213.94b
	CV(%)= 8.72

Means with common letters are not significantly different at 5 % level by DMRT

Effect of pinching frequency. The different pinching frequencies applied significantly affected the final height of the three species of medinilla after three months from transplanting (Table 4). The tallest plants were measured from the plants which were pinched twice at one and two months from transplanting with a mean of 126.11 cm at three months old. However, plant heights were comparable with those that were pinch once at one month from transplanting which had the mean of 120.78 cm. Plants that were pinched thrice at one, two and three months after transplanting had a plant height of 113.94 cm; while the shortest plants with the mean of 111.44 cm were obtained from those in the control plants.

Interaction effect.Highly significant differences were obtained on the final height of medinilla species as affected by pinching as shown in (Figure 4). *M. aphelandra* pinched twice at one and two months from transplanting enhanced plant growth with a mean reached 180.67cm. per plant. Followed by the same species that was pinched once at one month from transplanting comparable to unpinched species of *M. aphelandra* with means of 158 and 162.33. *M. scortechenii* which produce the shortest plants had a means ranging from 69.67 cm to 96.00 cm. This means that pinching twice of *M. aphelandra*, pinched twice at one and two months from transplanting enhanced faster growth of this species based from the result.

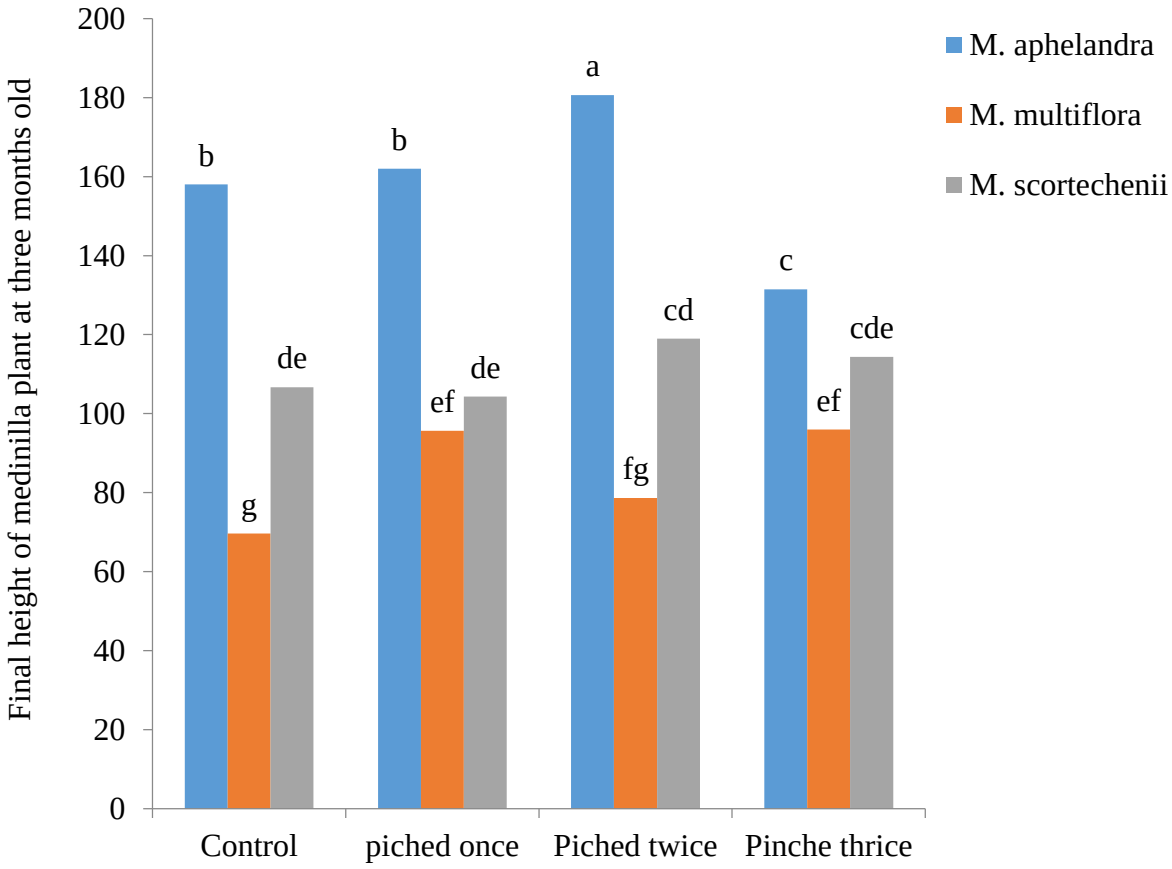

Figure 4. Final height (cm) of medinilla three months old from transplanting as influenced by variety and pinching frequency. (Means with a common letter are not significant different at 5 % level by DMRT)

Number of Leaves Three Months from Transplanting

Effect of species.Significantly differences were obtained on the number of leaves at three months from transplanting (Table 5). Plant *M. scortechenii* was significantly the highest number of the leaves than the other species of medinilla with amean of 106.92 leaves per plant. It was followed by *M. aphelandra* with a mean of 84.25 leaves per plant. The lowest numbers of the leaves were counted from the species of *M. multiflora* with a mean of 71.75 leaves per plant.

Result showed that the inherent genetic characteristics of the different species used had great influenced the number of the leaves attained at three months from transplanting.

Effect of pinching frequency.The different pinching frequency applied significantly affected the final height of the three species of medinilla after three months from transplanting (Table 5). The highest number of the leaves from transplanting were counted in *M. scortechenii* which is pinched thrice at one, two and three months after transplanting had a mean of 90 leaves per plant. It was followed by treatment one which is pinched once at one month with a mean of 87.89. However the lowest number of the leaves was obtained with those that were pinched thrice at one, two and three months and for those were not pinched had a means of 86 leaves per plant.

Interaction effect. Significantly different were obtained on the number of leaves of medinilla species as affected by pinching as shown in (Figure 5). Plant*M.scortechenii* pinched twice at one, two and three months enhanced the number of the leaves with a mean of 108 leaves per plant. It was followed by the same species unpinched plant of *M. scortechenii* with a mean of 107.33 leaves per plant. *M. aphelandra* produce leaves with a mean ranging from 63.33 to 88 leaves per plant. Plant that were produce the lowest number

of leaves were counted from *M. multiflora* with a mean ranging from 66 to 88.67 leaves per plant. This means that pinched thrice at one, two and three months of *M. scortechenii* produce the highest number of the leaves per plant based on the result.

Table 5. Number of leaves at three months from transplanting

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	84.25b
M. multiflora	71.75c
M. scortechenii	106.92a
Pinching Frequency	
Control (unpinched)	86.67a
Pinch once at one months from transplanting	87.89a
Pinch twice at one and two months from transplanting	90a
Pinch trice at one, two and three months from transplanting	86a
	CV9%)= 3.39%

Means with a common letter are not significantly different at 5 % level by DMRT

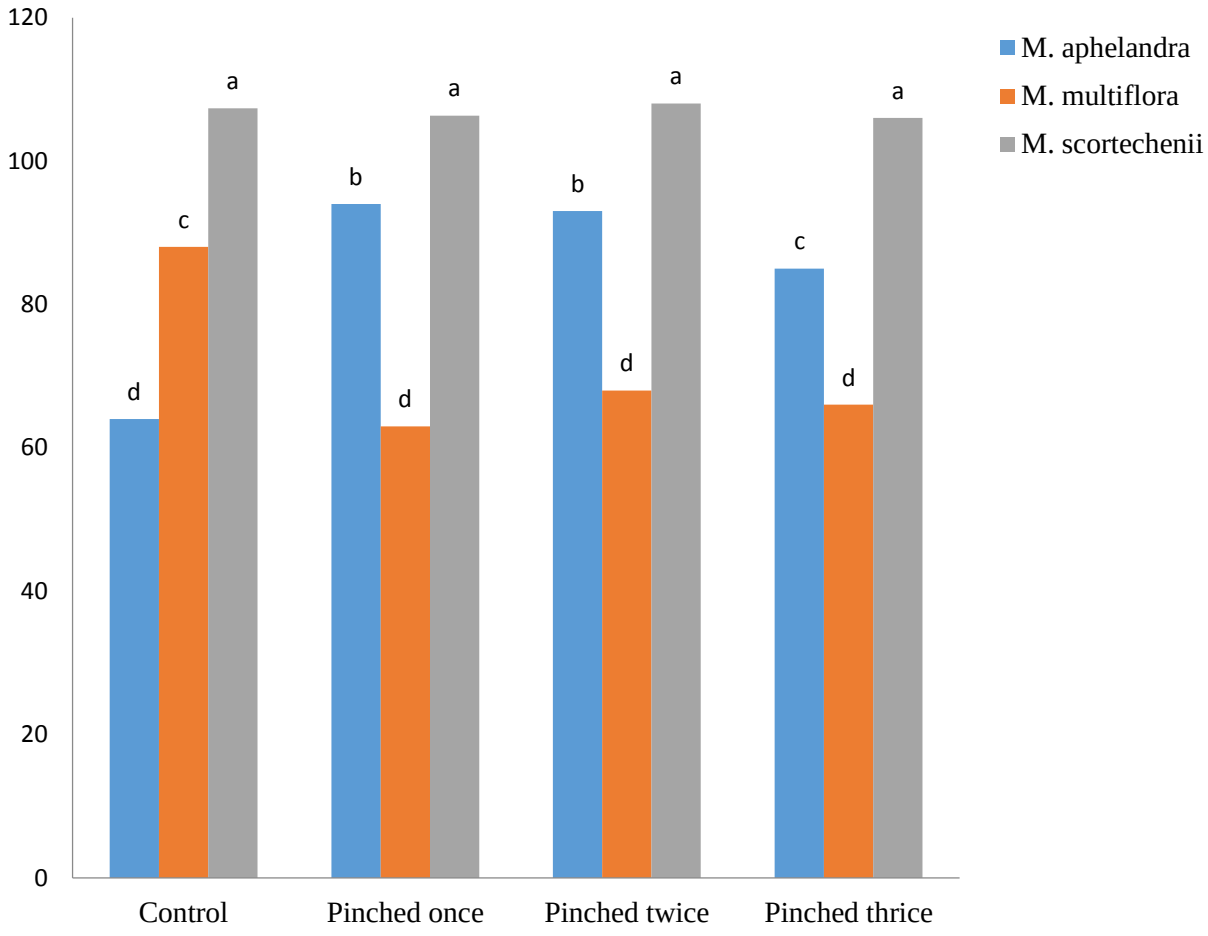

Figure 5. Number of the leaves at three months old as influenced by variety and pinching frequency. (Mean with a common letter are not significantly different at 5 % level by DMRT)

Number of Laterals produced Three Months from Transplanting.

Effect of species. Table 6 shows that there were highly significant differences with regards to the effect of the three different species of medinilla in the number of laterals counted from three months old plant. Table 3 shows that *M. aphelandra* and *M. multiflora* produced lower number of laterals three months after transplanting with means of 75.83 and 74.333, respectively, while *M. scortechenii* produced the highest number of laterals with a mean of 174.92 per plant.

Effect of pinching frequency. The different pinching frequency used effect highly significantly differences on the number of laterals produced three months after transplanting of the medinilla plants (Table 6). Unpinched plants produced the lowest number of laterals with mean of only 70.44, followed by plants pinched once at one months, twice at one and two months after transplanting with a mean of 105.11, 123.56 laterals, respectively. Plants that were pinched thrice at one, two and three months after transplanting promoted the production of the highest number of laterals with a mean of 134.33 after three months from transplanting. Results showed that the number of laterals produce was significantly increased with the increase in the number of pinching applied in medinilla plants, that is, from 105.111 to 134.333 laterals per plant.

Interaction effect.Results show that highly significant interaction effects, between the three medinilla species and the different pinching frequency were obtained with regards to the number of laterals at three months from transplanting (Figure 6). Pinched thrice at one, two and three months of *M. scortechenii* produces the highest number of laterals with the mean of 214 laterals per plant comparable to pinched twice at the same species with a mean of 199 laterals per plant. species *M. multiflora* produces a lower number of laterals

with a mean ranging from 40 laterals to 95 laterals per plant. Lowest number of laterals were obtained from *M. aphelandra* with a means of 60 laterals to 93 laterals per plant. This means that pinching thrice at one, two, and three months from transplanting will produced a highest number of leaves of this species based from the result.

Table 6. Number of laterals at three months from transplanting

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	75.83b
M. multiflora	74.33b
M. scortechenii	174.92a
Pinching Frequency	
Control (unpinched)	70.44d
Pinch once at one months from transplanting	105.11c
Pinch twice at one and two months from transplanting	123.56b
Pinch trice at one, two and three months from transplanting	134.33a

CV9%)= 9.65%

Means with a common letter are not significantly different at 5 % level by DMRT

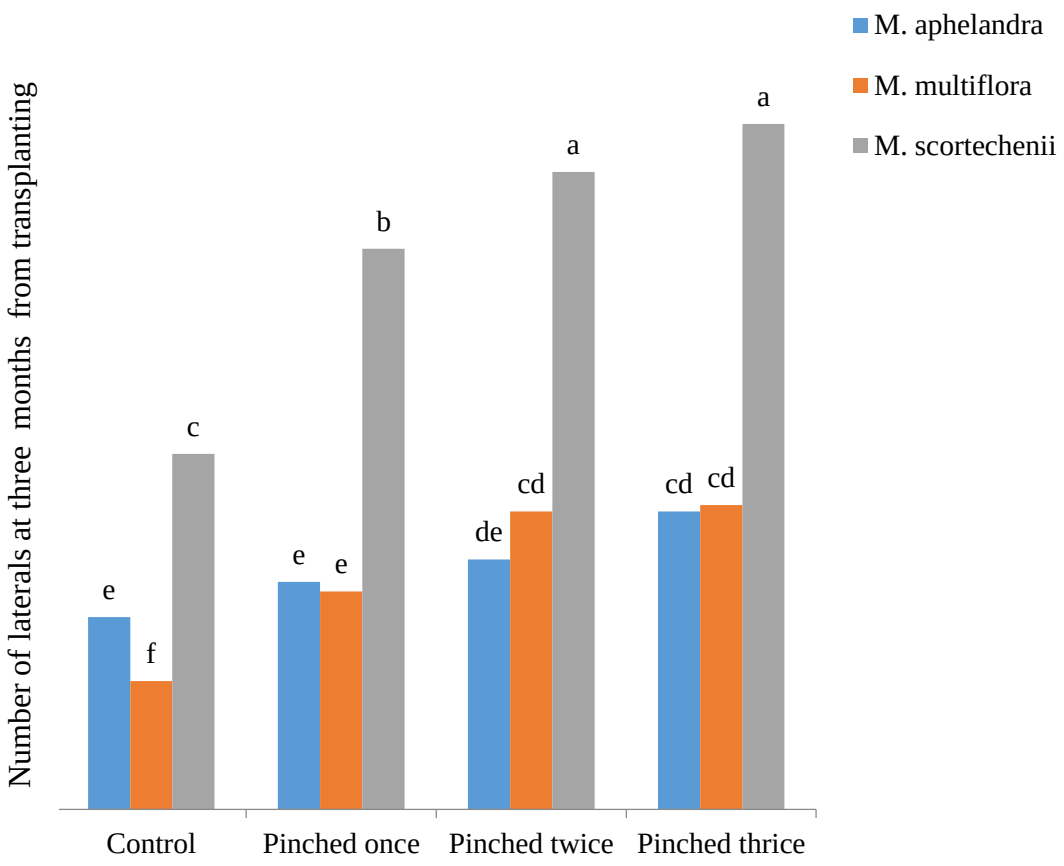

Figure 6. Number of laterals at three months old of plant as influenced by variety and pinching frequency. (Mean with a common letter are not significantly different at 5 % level by DMRT)

Leaf Area Three Months from Transplanting

Effect of species. Significantly difference were obtained on the leaf area of the three species of medinilla plant at three months from transplanting (Table 7). *M. scortechenii*was significantly the widest leaf area than the other species. Mean leaf area was 62.17 sq.cm at three months from transplanting. *M. multiflora* had a mean leaf area of 52.70 sq.cm. The lower number leaf area were measured from the *M. aphelandra* with the mean of 47.92 sq.cm

Result showed that the inherent genetic characteristics of the different species used had greatly influenced the final leaf area at three months from transplanting.

Table 7. Leaf area of the plant at three months from transplanting

TREATMENT	MEAN (SQ.CM)
Medinilla Species	
M. aphelandra	47.92b
M. multiflora	52.75b
M. scortechenii	62.17a
Pinching frequency	
Control	54.22b
Pinched once at one month from transplanting	76.11a
Pinched twice at one and two month from transplanting	40.67c
Pinched thrice at one, two and three months from transplanting	46.11c

CV %= 10.54

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency.The different pinching frequency applied significantly affected the final leaf area of the three species of medinilla at three months from transplanting (Table 7). Widest leaf areas were measured from the treatment one, pinched once at one month from transplanting with a mean of 76.11 sq.cm. at three months from transplanting. Table 7 showed that control had a leaf area with a mean of 54.22 at three months from transplanting followed by treatment three which is pinched one, twice and thrice from transplanting with a mean of 46.11. The lowest number of leaf area were measured from the treatment two which is pinched twice at one and two months from transplanting with a mean of 40.67

Result showed that the leaf area of the leaves of different species of medinilla measured was significantly different, depends on the leaves of the plant that were measured.

Interaction effect. Highly significant interaction differences were obtained on leaf area three months from transplanting as affected by pinching as shown in (Figure 7). Species *M. multiflora* pinching once at one month from transplanting produce a widest area of leaf that had a wider area with a mean of 124sq.cm. Followed by *M. aphelandra* that was the unpinched plant with a mean of 68 sq.cm comparable to other species of *M. scortichenii* from pinching at once, twice and thrice from transplanting with a mean of ranging 57.67 sq.cm to 64.33 sq.cm. This means that pinching once at one month of *M. multiflora* after transplanting had the widest leaf area.

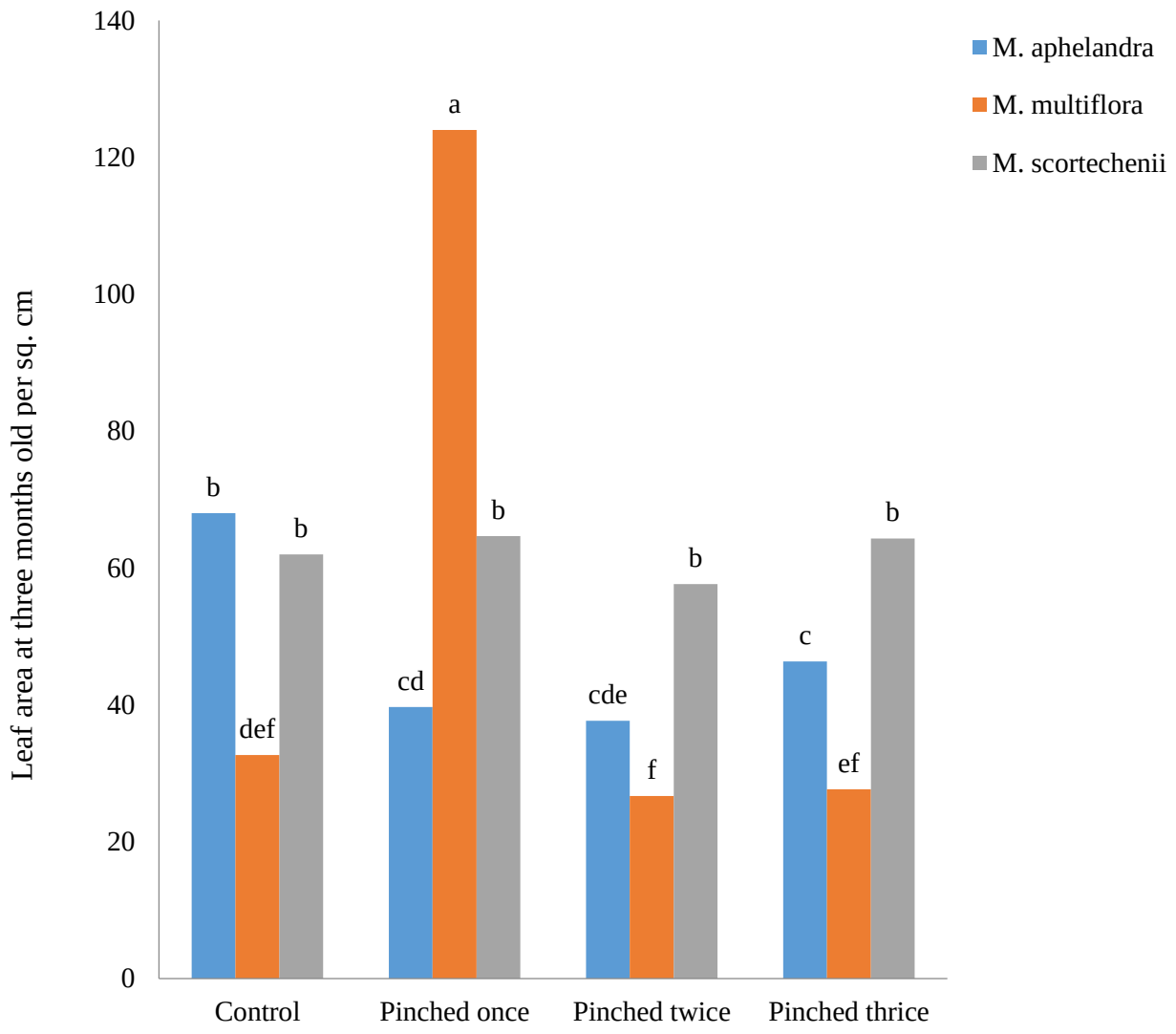

Figure 7. Leaf area at three months old per (sq.cm) as influenced by variety and pinching frequency. (Mean with a common letter are not significantly different at 5 % level by DMRT)

Days of Flowering

Effect of species. Result showed significantly difference in the number of days from pinching to flowering duration as affected by the medinilla species used. (Table 8). *M. multiflora* has significantly faster flowering duration after a mean of 27 days. *M. aphelandra* and *M. scortechenii* had delayed flowering duration showing comparable duration with means of 38.25 and 36.58 days from pinching respectively.

Table 8. Days from pinching to flowering

TREATMENT	MEAN (DAYS)
Medinilla Species	
M. aphelandra	38.25a
M. multiflora	27.50b
M. scortechenii	36.583a
Pinching Frequency	
Control (unpinched)	35.22
Pinched once at one month from transplanting	35.33
Pinched twice at one and two months from transplanting	34.67
Pinched thrice at one, two and three months from transplanting	31.22

CV %= 9.88

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. No significant differences were obtained on the number of days from pinching to flowering duration. Flowering duration of medinilla plant pinched thrice at one, two and three months were the earliest flowering duration with an average of 31.22 . Followed by plants applied with pinched twice with a mean of 34.22 days. Plants applied pinched once at one months and control were a little bit later after a mean of 35.33 and 35.22 days from pinching.

Interaction effect. Result showed highly interaction effect between the three medinilla species and different pinching frequency in the number of days from pinching to flowering duration (Figure 8). Species *M. aphelandra* pinched twice delayed flowering development with mean of 42.33 days. Followed by the same species that was the unpinched plant and pinched at once at one month of species *M.aphelandra* from transplanting with a mean of ranging 36.67 to 37.67 days. As compared to *M. scortechinii* which pinched at once at one month and unpinched plant delayed flowering with a mean of ranging 40 to 41 days from pinching. The earliest flowering duration were obtained on the species of *M. multiflora* reached 28 days from pinching as compared to the other species. This means that the latest to produced flowering duration was counted on the species of *M. aphelandra* but the earliest to flowered were in the species of *M. multiflora*.

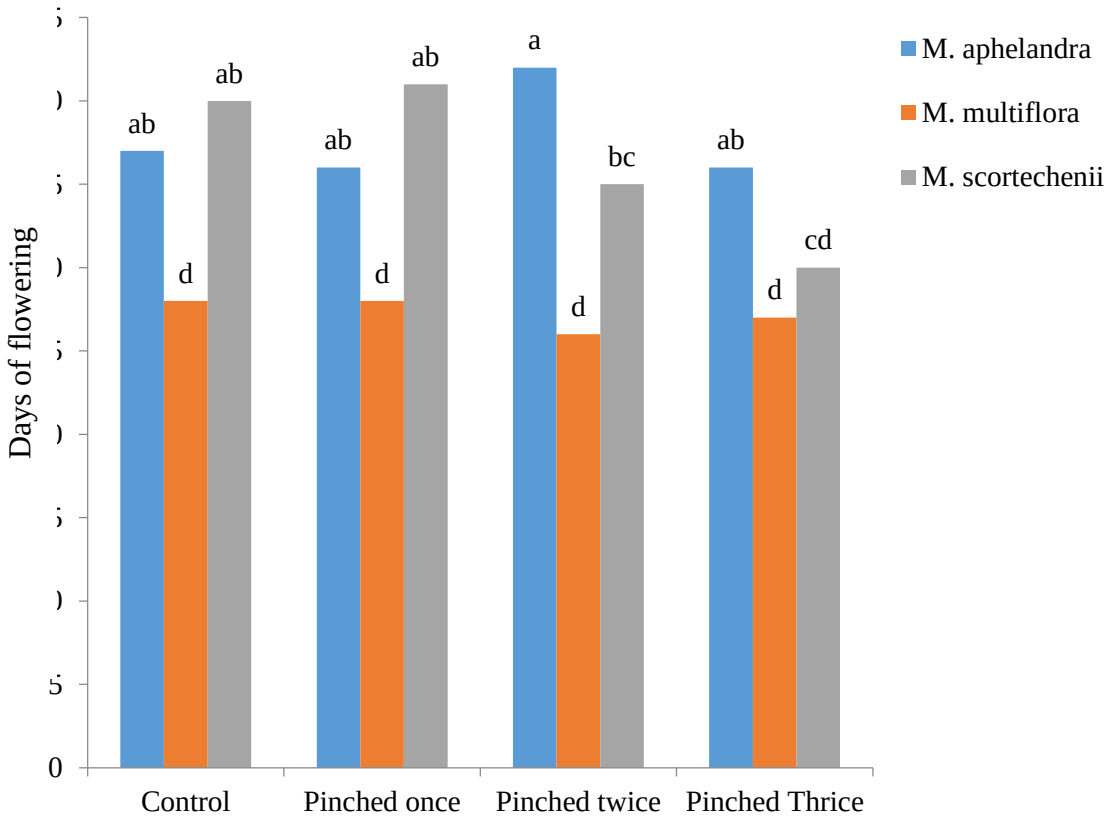

Figure 8. Number of days from pinching to flowering duration as influenced by variety and pinching frequency. (mean with a common letters are not significantly different at 5 % level by DMRT)

Days from Pinching to Flower Panicle at 1 cm. Size

Effect of species. Table 9 shows that there were significant differences with regards to days from pinching to flower panicle at 1 cm of the three different species of medinilla in the number of days counted. The *M. multiflora* formed flower at 1 cm had significantly earlier with a mean of 30.42 days. *M. aphelandra* and *M. scortechenii* showed delayed flowering at 1 cm with the mean of 42.83 and 40.58 days, respectively from pinching to flowering bud formation at 1 cm size. The varietal differences in flowering of 1 cm in size had significantly influenced the number of days with constant conditions for growth and flowering.

Table 9. Days from pinching to flower panicle at 1 cm. size

TREATMENT	MEAN (DAYS)
Medinilla Species	
M. aphelandra	42.83a
M. multiflora	30.42b
M. scortechenii	40.58a
Pinching Frequency	
Control (unpinched)	40
Pinched once at one month from transplanting	39.33
Pinched twice at one and two months from transplanting	37.44
Pinched thrice at one, two and three months from transplanting	35.00

CV %= 14.28

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. The different pinching frequency used had no significantly affected the number of days at flowering at 1 cm by the three species of medinilla plant (Table 9). The unpinched plants is the latest flowered at 1cm size after a mean of 40 days. Plant pinched once at one month with a mean of 39.33 days while plants applied with pinched twice at one, two and three months and pinched twice at one and two months flowered 1 cm in size with an average of 35 and 37 days respectively.

Interaction effect. There were no significant interaction effect obtained between the three species of medinilla and the different pinching frequency applied on the days of flowering at 1cm. in size.

Number of Days Flowering at 50% Anthesis

Effect ofspecies. Result showed significantly differences in the number of days from pinching to to flowering at 50 % anthesis as affected by the Medinilla species used (Table 10). *M. scortechenii* had significantly delayed date of flowering at 50 % anthesis after a mean of 63.833 days. *M. aphelandra* and *M. multiflora* has faster flowering development at 50% anthesis showing comparable duration with means of 62.500 and 56.917 days from pinching , respectively.

Effect of pinching frequency. Table 10 showed that the plants pinched twice at one and two month had delayed time to 50 anthesis stage at flowering with a mean of 63.33 days. Comparable number of days were counted in plants that were unpinched, pinched once at one months from transplanting and unpinched plant had a means of 61.00 days and 60 days respectively. Again, the results showed that flowering and flower development were delayed by pinching but produce higher number of flowers at 50 % anthesis.

Table 10. Days from flower bud formation to 50 % anthesis

TREATMENT	MEAN (DAYS)
Medinilla Species	
M. aphelandra	56.92b
M. multiflora	62.50a
M. scortechenii	63.83a
Pinching Frequency	
Control (unpinched)	60.33
Pinched once at one month from transplanting	61.00
Pinched twice at one and two months from transplanting	63.33
Pinched thrice at one, two and three months from transplanting	59.67

CV %= 7.98

Means with a common letter are not significantly different at 5 % level by DMRT

Interaction effect.Result showed significantly interaction effects obtained between the three different species of medinilla and the different pinching frequency shown in (Figure 9). Species *M.scortechenii* applied with pinched thrice at one, two and three months had the highest number of days delayed flowering with a mean of 68.67 days. Followed by the same species that pinched once at one month's comparable to pinched twice at one and two months from transplanting of *M. scortechenii* with a means of 59.33 and 63.67 days. Species *M. multiflora* which delayed flowering at 50 anthesis , pinched twice at one and two months from transplanting and pinched thrice from transplanting with a mean of ranging 61 to 66 days. *M. aphelandra* delayed flowering at 50 % anthesis which is unpinched plant with a mean of 58 days. This mean that specicies *M. scortechinii* pinched

thrice at one, two and three months from transplanting had the latest delayed flowering based from the result.

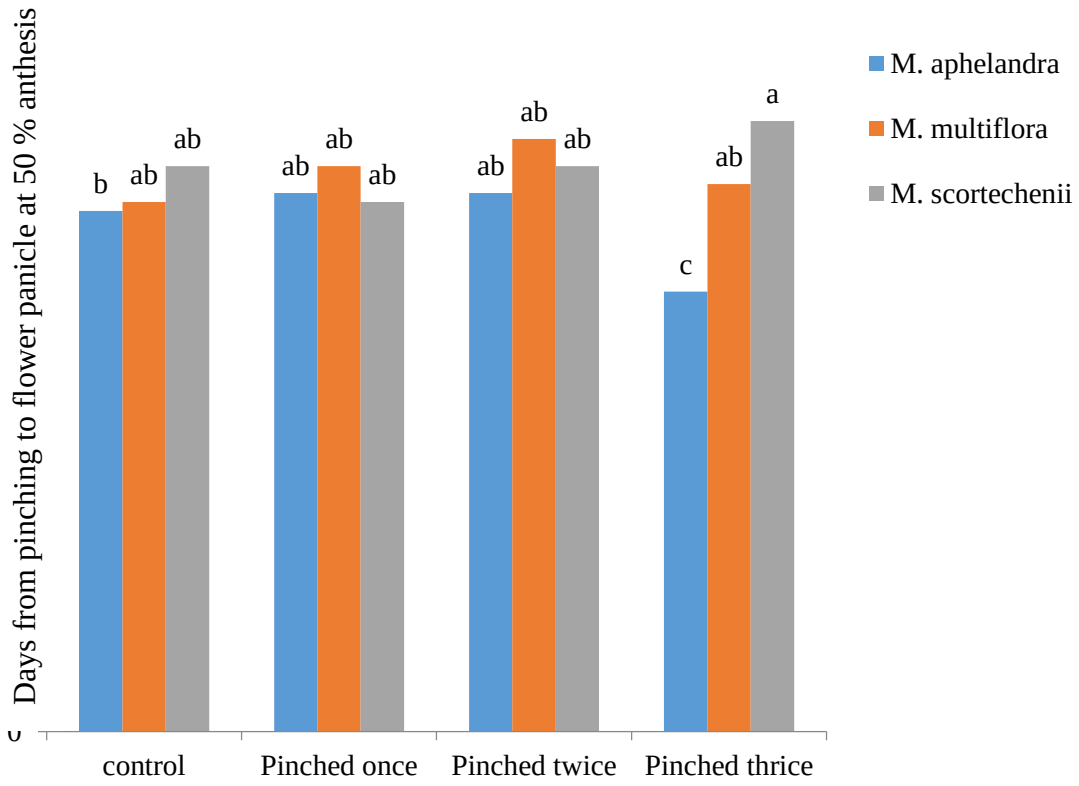

Figure 9. Number of days from transplanting to flower panicle at 50 % anthesis as influenced by variety and pinching frequency. (Means with a common letter are not significantly at 5 % level by DMRT)

Number of Flower Panicle at Three Months from Transplanting

Effect of species. Table 11 shows that there were significantly differences with regards to the effect of the three species of medinilla in the number of flower panicle counted at three months from transplanting. Table 11 shows that species *M. aphelandra* produces higher number of flower panicle at flowering from transplanting with a mean of 13.67. Plants of species *M. scortechenii* and *M. multiflora* had comparable number of

flower panicle at three months from transplanting with means of 8.25 and 6.33 flower panicle per plant, respectively.

Table 11. Number of flower panicle three months from pinching

TREATMENT	MEAN
Medinilla Species	
M. aphelandra	13.67a
M. multiflora	6.33c
M. scortechenii	8.25b
Pinching Frequency	
Control (unpinched)	4.22d
Pinched once at one month from transplanting	7.67c
Pinched twice at one and two months from transplanting	12.22b
Pinched thrice at one, two and three months from transplanting	13.56a

CV %= 12.16

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. Table shows highly significant differences were obtained on the average number of flower panicle per plant on the three species of medinilla from transplanting . Control plant had lowest number of flower panicle counted per plant with a mean of 4.22 followed by treatment one with a mean of 7.67 flower panicle , treatment two with a mean of 12.22 flower panicle. The highest number counted was obtained from the treatment three with a mean of 13.56 flower panicle per plant.

Result in number of flower panicle reflected on the pinched medinilla plants where in the plant pinched thrice at one, two and three months produce a higher number of flower panicle while the control plants produced lesser number of flower panicle.

Interaction effect. Statistical analysis showed that the combined effect of the different of species of medinilla plants had highly significant effect on the number of flower panicle at three months. (Figure 10) *M aphelandra* had the highest number of flower panicle which is pinched thrice at one, two and three months with a mean of 21 flower panicle. flower panicle followed by the same species pinched twice at one and two months from transplanting with a mean of 12.22 flower panicle per plant of *M. aphelandra.* Plants of *M. scortechenii* had the number of flower panicle of laterals pinched thrice at one, two and three months with a mean of 10.33 cm; while the lowest number of panicle were counted on the *M. multiflora* with a mean of 9flower panicle at three months from pinching. This means that *M. aphelandra* pinched thrice at one, two and three months produce the highest number of flower panicle.

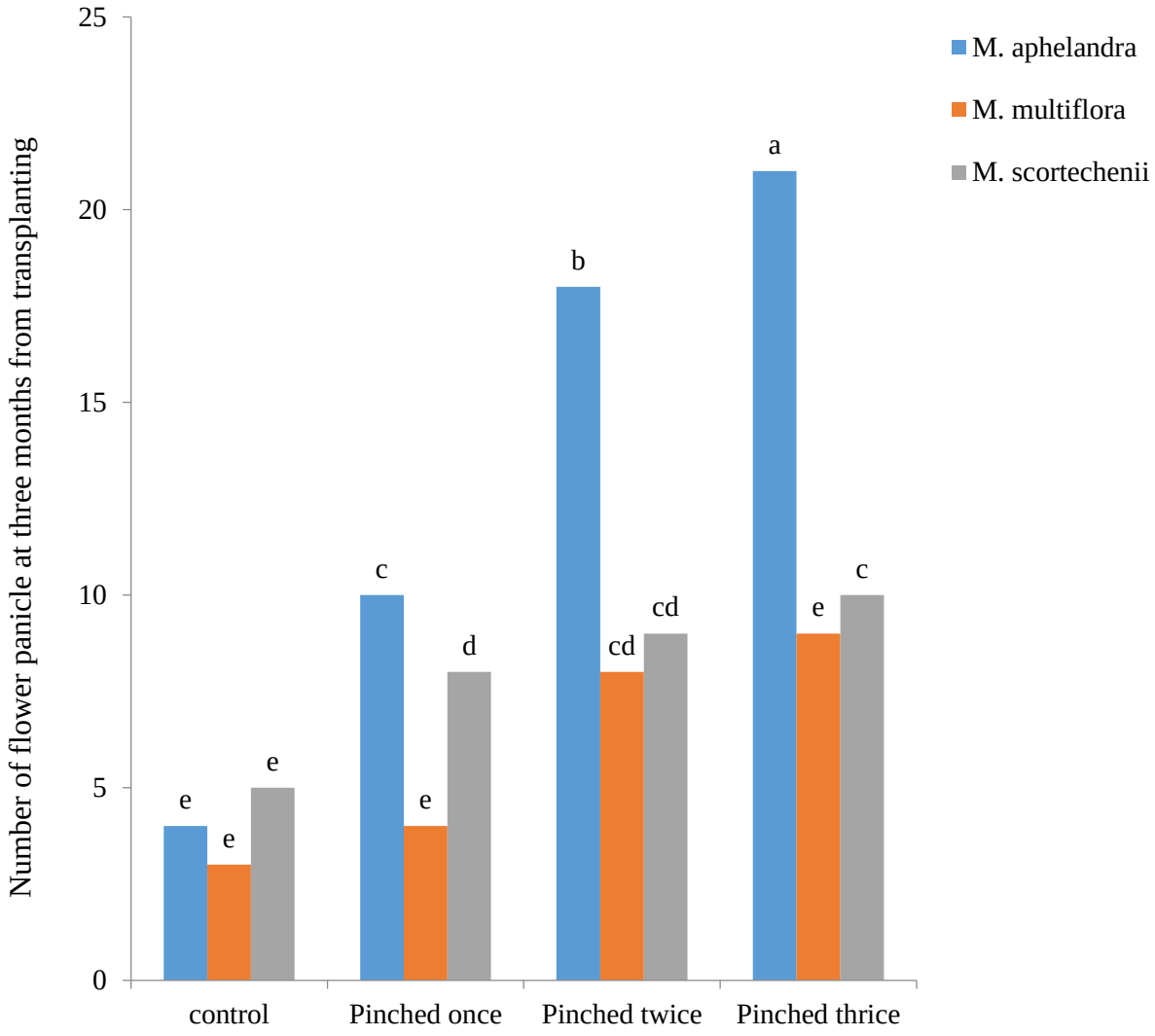

Figure 10. Number of flower panicle at three months from transplanting. (Mean with a common letter are not significantly different at 5 % level by DMRT)

Length of Flower Panicle at One Month from Transplanting(cm).

Effect of species. Table 12 shows no significantly difference on the average on the length of flower panicle per plant in three species of medinilla as affected by the different pinching frequency applied. *M. multiflora* had the longest length of flower panicle at one month with a mean of .97 cm. This was followed by *M. aphelandra* with a mean of .67 cm.

The shortest length of flower panicle were measured from *M. scortechenii* with a mean of .66cm.

Table 12. Length of flower panicle at one month from transplanting

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	0.67
M. multiflora	0.98
M. scortechenii	0.66
Pinching Frequency	
Control (unpinched)	0.83
Pinched once at one month from transplanting	0.61
Pinched twice at one and two months from transplanting	0.87
Pinched thrice at one, two and three months from transplanting	0.76

CV %= 45.68

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. Result showed no significant difference in the length of flower panicle as affected by the three species of medinilla used (Table 12). Comparable length of flower panicle were measured in plant applied in unpinched and pinched twice at one and two months at one month from transplanting with the length of flower panicle ranging from .83 cm to .86 cm. Plants that were pinched thrice at one, two and three month

after transplanting had a plant height of .76 cm; while the shortest plants with the mean of .61 cm. were obtained from those in the treatment one.

Interaction effect. There were no significant interaction effect obtained between the three species of medinilla and the different pinching frequency applied on the length of flower panicle at one month from transplanting.

Length of Flower Panicle of Two Months.

Effect ofspecies. Significant differences were obtained on the length of flower panicle at two months of the three species of medinilla plant. (Table 13). *M. aphelandra* was significantly taller than the other cultivars mean length was 18.17 cm at two months of flowering. *M. scortechenii* had a mean length of 12.88cm. The shortest plants were measured from the *M. multiflora* with the mean length of 7.58 at two months.

Result showed that the inherent genetic characteristics of the different species used had greatly influence the final length of panicle attained at two months of flowering.

Table 13. Length of flower panicle two months from flowering duration

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	18.17a
M. multiflora	7.58c
M. scortechenii	12.88b
Pinching Frequency	
Control (unpinched)	12.22bc
Pinched once at one month from transplanting	16.44a
Pinched twice at one and two months from transplanting	12.94b
Pinched thrice at one, two and three months from transplanting	9.89c

CV %= 22.21

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. The different pinching frequency applied highly significant affected by the length of flower panicle of the three species of medinilla at two months of flowering (Table 13). Longest flower panicle was measured from the treatment one which is pinched once at one month with a mean of 16.44 cm at two months. However, it is comparable with plants applied with treatment two which is pinched twice at one and two months with the mean of 12.94 cm. Unpinched plants were shorter length of flowering with the mean of 12.22 cm while the shortest plants with the mean of 9.89cm was obtained from those pinched thrice at one, two and three months.

Interaction effect. Result showed highly significant interaction effects obtained between the three different species of medinilla and the different frequency applied on the length of flower panicle at two months from flowering duration (Figure 11). *M. aphelandra* applied with pinched twice at one and two months had the longest height after with a mean ranging from 17 to 21 cm. from flowering duration. The shorter height were measured on the species *M. scortechenii* unpinched and pinched once at one month from flowering duration with a means of ranging 8cm. to 20cm. .The shortest height were measured on the species of *M. multiflora* pinched thrice at one and two months from pinching had a mean height of 8 cm. This means that pinching twice at one and two months from transplanting and pinched once at one month were the produce the longest flower panicle.

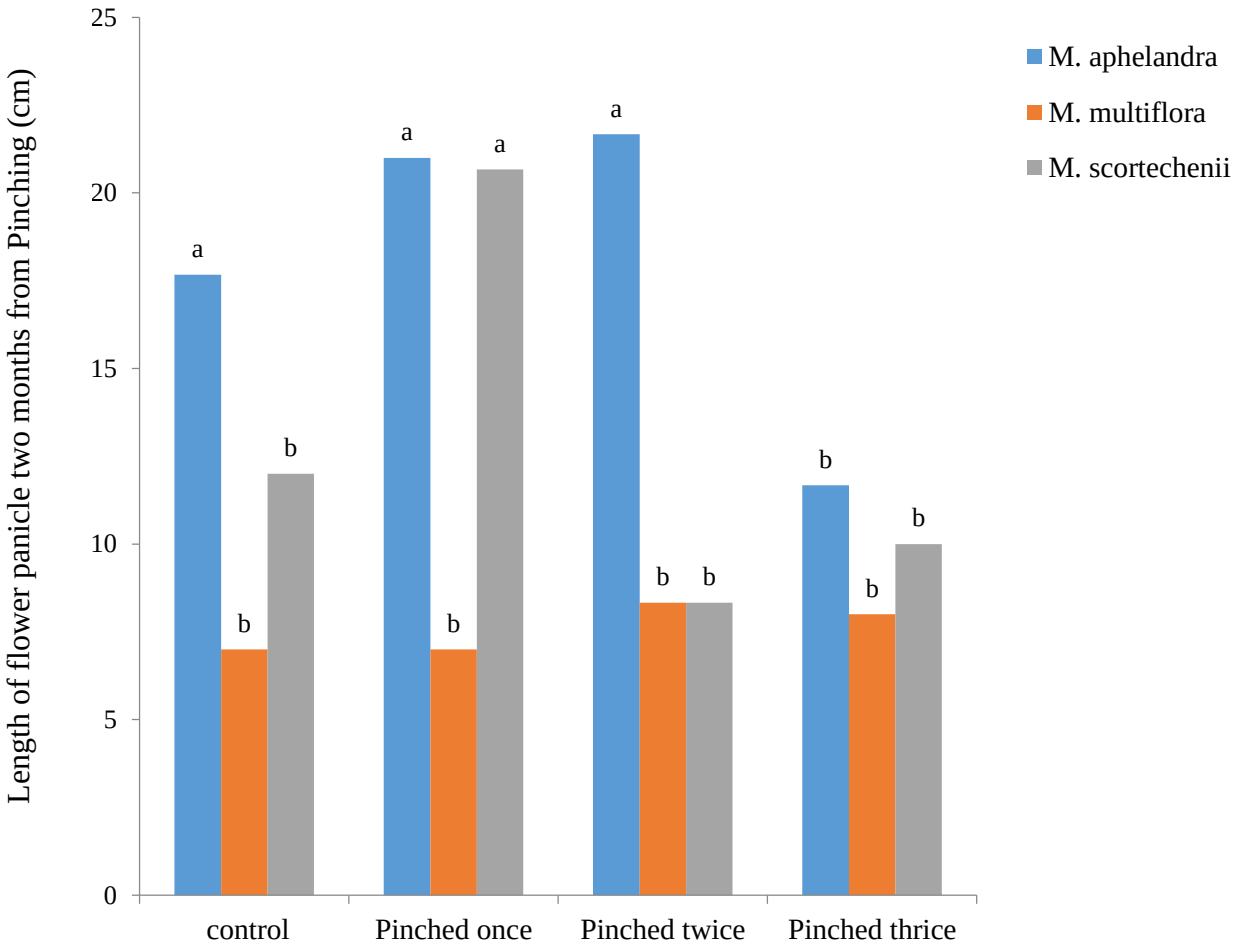

Figure 11. Length of flower panicle two months from pinching as influenced by species and pinching frequency. (Mean with a common letter are not significantly different at 5 % level by DMRT)

Length of Flower Panicle Three Months from flowering

Effect of species. Highly significant were obtained on the length of flower panicle at three months of the three species of medinilla plants (Table 14). *M. aphelandra* was significantly taller than the other species. Mean height was 24.25 cm at three months of flowering. *M. scortechenii* had a mean height of 18.75cm. The shortest length of flower panicle measured from *M. multiflora* with the mean length of 16 cm.

Results showed that the genetic characteristic of the different species used had greatly influenced the final length of the flower panicle attained at three months from transplanting.

Table 14. Length of flower panicle three months from transplanting

TREATMENT	MEAN (CM)
Medinilla Species	
M. aphelandra	24.25a
M. multiflora	16c
M. scortechenii	18.75b
Pinching Frequency	
Control (unpinched)	18.89
Pinched once at one month from transplanting	21.33
Pinched twice at one and two months from transplanting	19.33
Pinched thrice at one, two and three months from transplanting	19.11

CV %= 11.65

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. The different pinching frequencies applied are not significant with regards to the effect of the three species of medinilla in the length of flower panicle measured at three months from transplanting. Table 14 shows that the treatment one which is pinched once at one month had a longest length of flower panicle at three months with a mean of 24.25cm. Unpinched plant had length of flower panicle with a mean of 18.88. However, it is comparable with plants pinched twice at one months and two months from transplanting and pinched thrice at one, two and three months from transplanting had the shortest length of flower panicle with a mean of 19.33 and 19.11.

Interaction effect. Result showed highly significant interaction effect obtained between the three different species of medinilla and the different pinching frequency applied on the length of flower panicle at three months from flowering duration (Figure 12). *M. aphelandra* applied with pinched once at one month's had the longest height after with a mean of 25.67 cm. from flowering duration followed by the s me species which were pinched twice at one and two months comparable with unpinched plant of *M. aphelandra* with a mean of ranging from 24.67 to 25.33cm. Plant *M. scortechenii* with a mean of ranging 17.67 to 24.33 cm. The shortest heights were measured at the *M. multiflora* with a mean ranging from 14 to 18 cm. from flowering duration.

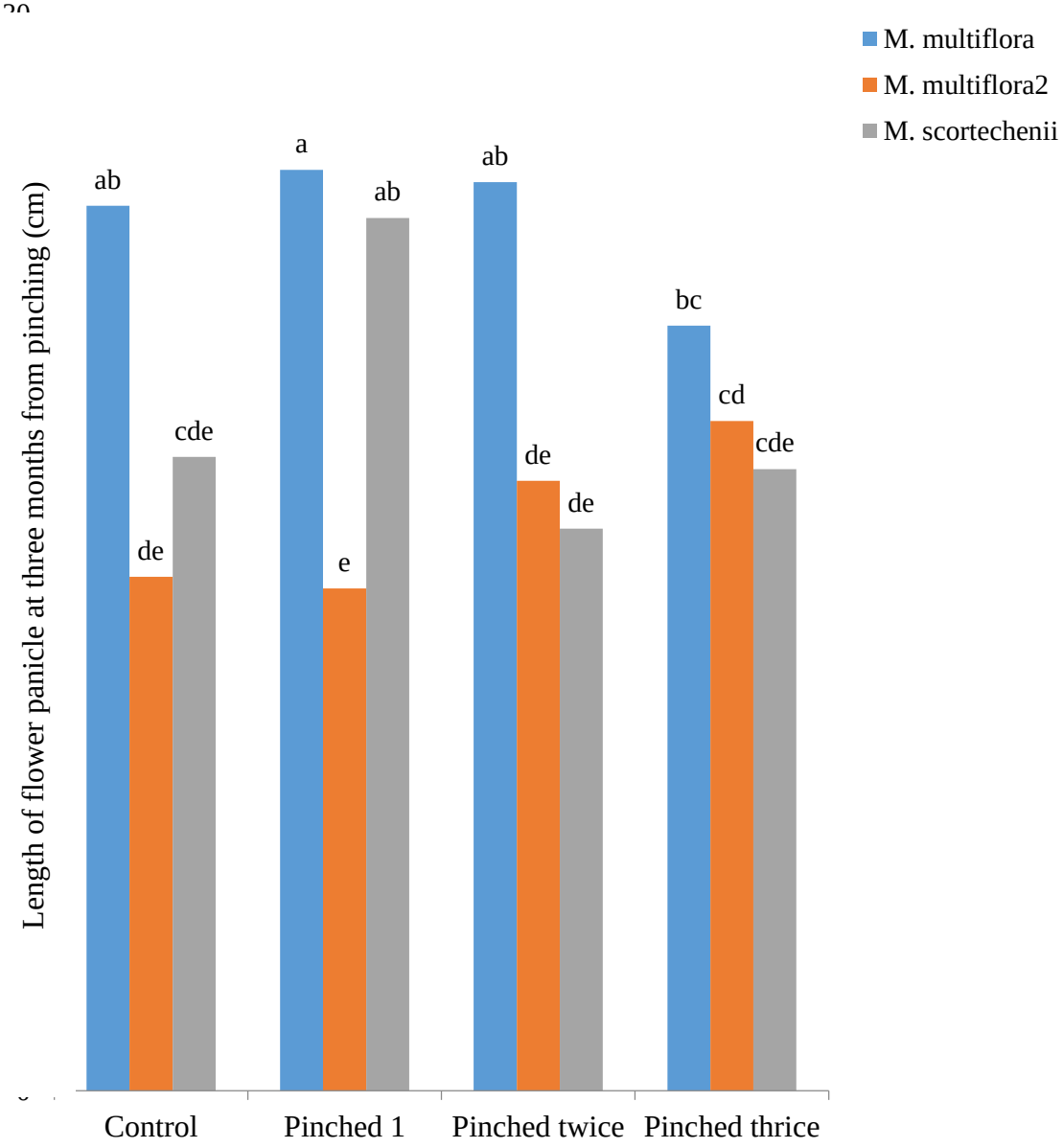

Figure 12. Length of flower panicle to three months from transplanting as influenced by species and pinching frequency. (Mean with a common letter is not significantly different at 5 % level by DMRT)

Counting the Number of Days from flowering to Full Bloom Stage

Effect of species . Result showed highly significant differences in the number of days from transplanting to full bloom stage of flowering as affected by the three varieties used (Table15). *M. scortechenii* had significantly delayed flower at full bloom stage after a mean of 86.33 days. Plants *M. multiflora* had a mean height of 80.08 days from pinching to full bloom stage of flowering. *M. aphelandra* had the fastest days of from pinching to full bloom stage with the mean of 73.33.

Table 15. Number of days from pinching to full bloom stage

TREATMENT	MEAN (DAYS)
Medinilla Species	
M. aphelandra	73.33c
M. multiflora	80.08b
M. scortechenii	86.33a
Pinching Frequency	
Control (unpinched)	79.89
Pinched once at one month from transplanting	80.88
Pinched twice at one and two months from transplanting	79.11
Pinched thrice at one, two and three months from transplanting	79.78

CV %= 6.87

Means with a common letter are not significantly different at 5 % level by DMRT

Effect of pinching frequency. Table 15 showed that the plants pinched once at one month had delayed from pinching time to full bloom stage at flowering with a mean of 80.89 days. Comparable number of days were counted in plants applied with unpiched, pinched twice at one and two months from transplanting and lastly, pinched thrice at one, two and three months from transplanting with a mean of 79.88 days, 79.11 days and 79.77 days respectively. Again, the results showed that flowering and flowering development were delayed by pinching frequency but had greater number of flower were produce.

Interaction effect. There were no significant interaction effects obtained between the three species of medinilla and the different pinching frequency applied from transplanting to full bloom stage of flowering medinilla plants.

Figure 1. Experimental area with the researcher gathering for data

Figure 2. Document of medinilla plant one month from transplanting

Figure 3. Documentation at two months from transplanting

Figure 4. Documentation at three months from transplanting.

Species *Medenilla aphelandra*

Figure 5. Collection of M.scortechenii (A), M.multiflora (B), M. aphelandra (C) species

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Three pinched medinilla species, namely *M. aphelandra*, *M. multiflora* and *M. scortechenii* were grown from lateral shoots and were applied with different pinching frequency; Unpinched (control), pinched once at one month from transplanting , pinched twice at one and two months from transplanting and pinched thrice at one, two and three months from transplanting. The study aimed to evaluate the effectiveness of the different pinching frequency on the growth and flowering of medinilla and to determined the best medinilla species most responsive to the different pinching frequency on the growth and flowering of medinilla plant. The study was conducted at the Benguet State University Floriculture Project Research Area from September 2012 to January 2013.

Result showed that among the three species of medinilla grown. *M. scortechenii* had the highest number of leaves and number of laterals per plant at three months from transplanting compared to other species, but it delayed flowering . It was also the highest number of panicle together with *M. aphelandra*. The lowest number of leaves but had the longest flower panicle at three months from transplanting were counted on the species of *M. aphelandra*. It was the latest flowering duration but it was the highest number of flower panicle. *M.multiflora* had the lowest number of laterals and had the lowest number of flower panicle but the fastest duration of flowering among the two species.

With regards to the effect of the pinching frequencies, the number of laterals counted significantly increased with the increase in the number of pinching frequency applied with more leaves and laterals counted in pinched thrice at one, two and three months, and the fewer leaves and laterals were counted on the unpinched plants. Final

plant height, stem length of the flower were significantly reduced with more pinching with the shortest plant and stem and more flowers were produced from plants applied with pinched thrice at one, two and three months, but sometimes it was depend on the initial height of the plant also. The species of medinilla with the longest flower panicle and highest number of laterals were obtained from pinched thrice and those that pinched twice at two and three months. However, more flowers were produce by the plants applied with pinched thrice and less in the unpinched and those applied with pinched once at one month from transplanting.

Significant interaction effect were obtained on the flowering duration of and flower development. *M. aphelandra* that were applied with pinched twice at one and two months significantly delayed flowering and flower development, together with *M. scortechenii*. *M. multiflora* that were pinched twice at one and two months from transplanting were the earliest duration of flowering.

Conclusions

Based on the finding, it is conclude that *M. aphelandra* is the best species medinilla flower produce since it was the highest number of flower panicle produce together with *M. scortechenii* which is produce more laterals and that will produce to many flowers later on.

Pinching frequency to be applied is based on the purpose of the grower. If the grower wishes to produce more flowers and laterals, Pinched thrice at one, two and three months from transplanting to produce a more laterals and flowers.

Recommendations

Growing *M. scortechenii* are therefore recommended for medinilla flowering production together with *M. aphelandra* in the highland because they had the highest number of flower panicle and it had the highest number of leaves also to give an attractive views of the plant.

If the growers wishes to produce more flowers and laterals per plant, Pinched thrice at one, two and three months from transplanting by snapping off the shoots above the internodes but if the growers wishes to produce tall plant but it produce a lowest number of flowers and laterals unpinched and pinched once at one month from transplanting is recommended.

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