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Vegetative Propagation of Padauk (*Pterocarpus macrocarpus* Kurz.) for Establishment of Seed Orchard and Plantation (A Preliminary Test)

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ပိတောက်သစ်မျိုး၏ သစ်မျိုးသန့်ဥယျာဉ်နှင့် စိုက်ခင်းတည်ထောင်ရာ၌ ခန္ဓာပိုင်းမျိုးပွားနည်းဖြင့် အသုံးချနိုင်ခြင်းကို စမ်းသပ်ခြင်း

ဒေါက်တာဥာဏ်ထွန်း၊ Ph.D၊ ပါမောက္ခ
သစ်တောတက္ကသိုလ်

စာတမ်းအကျဉ်းချုပ်

သက်ရင့်ပိတောက်ပင်များမှ အကိုင်းများကိုဖြတ်၍ ပလပ်စတစ်အိတ်များတွင် မြေကြီးထည့်၍ ၄င်း၌ စမ်းသပ်စိုက်ပျိုးခြင်း ဖြစ်ပါသည်။ စမ်းသပ်သောနေရာများမှာ မိုးစွေသုတေသနစခန်းနှင့် ရေဆင်းပျိုးဥယျာဉ်တို့တွင် ဖြစ်ပါသည်။ စမ်းသပ်ရာတွင် ရေငွေ့ခန်း အကူအညီနှင့် အမြစ်ထွက်ဆေးများကို မသုံးစွဲပဲ အရိပ်အနည်းရှိသော ပျိုးစင်အောက်တွင်သာ စိုက်ပျိုးစမ်းသပ်ခြင်း ဖြစ်ပါသည်။ အရွက်ထွက်နှုန်းမှာ အလွန်ကောင်းမွန်သော်လည်း (၈၀-၉၀%) အမြစ်ထွက်နှုန်းမှာမူ (၃၀-၄၀%)သာ ရှိသည်။ သစ်မျိုးသန့်ဥယျာဉ်တည်ထောင်မှုအတွက် အသုံးချနိုင်မည်ဖြစ်ပြီး စိုက်ခင်းတည်ထောင်ရန် အတွက်မှာမူ ရေငွေ့ခန်းကြီးများဖြင့် စိုက်ပျိုးမည်ဆိုလျှင် ဖြစ်နိုင်စရာအကြောင်းရှိပါသည်။ သစ်မျိုးသန့် ဥယျာဉ်တည်ထောင်ခြင်းတွင် ကိုင်းထိုးခြင်းနှင့်ကိုင်းဆက်ခြင်း ကုန်ကျစရိတ်နှုန်းအကြမ်းကို ဖော်ပြထား ပါသည်။

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Abstract

Cuttings of Padauk tree branches were planted in plastic bags (tubes) in Moswe Station and also in Yezin. The tests were done without conditioning of the environment or without using any rooting hormone. The number of sprouts were very high (80-100%) but rooting found to be low (30-40%). Using this cutting method, only clonal seed orchard can be established but for plantation, establishment, controlled-conditioning using mist chambers could produce higher percentage of rooting. A rough comparison of costs in using Cuttings and Grafting for Clonal Seed Orchard is given.

Contents

1. Introduction

Myanmar Padauk belongs to the family Papilionaceae to the order *LEGUMINOSAE*. The Padauk is found most typically in the drier types of upper mixed forests often mixed with Teak *(Tectona grandis* Linn.), Pyinkado (*Xylia dolabriformis* Benth.). Tauk-kyant (*Terminalia tomentosa* W & A), etc. Also it grows mixed with Bamboos species such as *Bambusa polymorpha*,. *Dendrocalamus strictus, Cephalostachym pergracile* and *Dendrocalamus m'clellandii* Kurz. (Troup, 1909)

Among many commercially important tree species Padauk takes its place after Teak and, sometimes even surpassing the sale price of Teak. Padauk wood is strong and durable and has a beautifully mixed color. It has great demand in furniture industries. From the big stump left in the ground after logging to the so called Padauk-gyi-bound (Burr; woody outgrowth on the stem of the tree or on a big branch originated due to infection) have great demand in earning foreign exchange.

Yearly extraction of Padauk exceeds that of planting so it is imperative to increase the acreage of Padauk plantation in the near future. Padauk is usually planted from seeds (Htun, 1980) but it can be planted also from cuttings.

The objectives of this paper are to find out the method of establishment of clonal seed orchard and also to find out the possibility of establishing plantations using cuttings.

2. Literature Review

In many countries cuttings from species such as Pine, Spruce, Eucalyptus, Dipterocarpus (Hartman and Kerter, 1975), (Toda [Ed] 1974). *Gmelina arborea* (report from Indonesia by U Than Aye) and Teak (Doo and Mundt, 1994) are used for plantations and in tree improvement programmes.

3. Materials and Methods

Branches are collected from matured Padauk trees. The size of cuttings tested were about ½ inch in diameter and 10 inches in length and have atleast 3 nodes were included.

From each tree 100 cuttings were used and from 3 trees were taken at each badge. Two badges of tests were conducted during July and December. Other species like Pyinkado (*Xylia dolabriformis* Benth.), Yemane (*Gmelina arborea* Roxb. L.), and Thin-win (*Milletia pendula* Benth.) cuttings were tested but it is not relevant to this paper.

No rooting hormone was used and or conditioning of the environment was not made. The cuttings were simply placed under the partial shade of the nursery shed. The tests were conducted in Moswe Research Station and Yezin medicinal plant garden nurseries.

The tests are still going on in Moswe, Yezin medicinal plant nursery and in tissue culture section mist chamber.

4. Results

The following results were obtained.

(1) In the first test at Moswe 80% of the 300 cuttings from 3 trees were sprouted and from that, 39% rooted. (See Table 1)

(2) Result from first test at Yezin from 300 cuttings 90% sprouted and from that 30% rooted.
(3) In the second test at Moswe 95% of the 300 cuttings sprouted and from that, 42% were found to be rooted. (See Table 2)
(4) Result of the second test in Yezin showed that 100% of the 300 cuttings sprouted and from that 35% rooted.
(5) Sprouting started after a week from planting.
(6) Rooting started after 2 months time from planting.

5. Discussion

The percentage of sprouting was high but the rooting was low showed that if one could find a way to root successful rooting can be increased.

Another cause could be due to daily watering, that could be if controlled, can increase the rooting percentage. For large scale plantation if large mist chambers could be used and humidity controlled, cutting method could be used for plantation.

The cost for cuttings raised in the nursery should be compared to the cost of raising seedlings for plantation. See Appendix I for costs.

For tree improvement purpose where the number of ramets from an ortet is not many cuttings method could be used. And also it can circumvent the conventional grafting methods.

If the plantation is for timber quality, establishing plantation using cuttings may still have to be tested.

6. Conclusion

(1) Vegetative propagation of Padauk by cutting method can be done.
(2) Cutting Method can be used for establishing clonal seed orchard.
(3) There is a possibility of using cuttings for plantation.
(4) For ornamental purpose cuttings can be planted which will flower in a shorter time.

Table No. 1 First Test Results

No.	Station	No. of Cuttings	Sprouted	Rooted	Remarks
1.	Moswe	100 x 3	240 (80%)	90 (39.1%)	
2.	Yezin	101 x 3	270 (90%)	81 (30%)	

Table No. 2 Second Test Results

No.	Station	No. of Cuttings	Sprouted	Rooted	Remarks
1.	Moswe	100 x 3	285 (95%)	120 (42.1%)	
2.	Yezin	100 x 3	300 (100%)	105(35%)	

Appendix (I)

Cost of Raising Cuttings

		Kyat/Pya
(1)	Labour Cost for climbing tree K. 100 per tree	100.00
(2)	Management labour for 6 months at K. 20 per working day for 25 days 20 x 25 x 6	3000.00
	Total	**3100.00**

Cost of Raising Grafted Trees

		Kyat/Pya
(1)	Labour Cost for climbing tree K. 100 per tree	100.00
(2)	For Grafting 4 persons for 2 weeks (4 x 20 x 14) Ks.	1120.00
(3)	Cost of Raising Stock – plants the whole year round one labour 500 x 12 = 6000.00	6000.00
(4)	Cost of buying Padauk seeds per tin	600.00
	Total	**7820.00**

Note:

The cost of plastic tubes and soil are not included in both the cases.

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