

**LAC CULTIVATION ON *MOGHANIA MACROPHYLLA* (WILLD)—  
ASSESSMENT OF OPTIMUM DOSE OF BROODLAC  
FOR PROPER INOCULATION**

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**Introduction**

*Moghania macrophylla* a tall erect shrub growing to a height of 8'-10' with sulcate silky branches, a natural bush has been found to be suitable for introducing intensive cultivation of lac under normal conditions. This is widely distributed in the Himalayan and sub-Himalayan forests from Chamba to Bhutan, in Khasi and Naga Hills in Assam, the hills of Parashnath and Visakhapatnam and along the Western Ghats in South India upto the height of 5000 feet (Roonwal *et al.*, 1958). It is known to be one of the minor lac hosts of Assam, chiefly in Mikir Hills for growing *Rangeeni* lac (Krishnaswami *et al.*, 1962). Trials conducted on *Moghania macrophylla* have proved that it is a satisfactory lac host being capable of taking inoculation of both *Rangeeni* and *Kusmi* lac strains.

In this study experiments were conducted with *Rangeeni* strains on *Moghania macrophylla* bushes to assess optimum dose of broodlac for proper inoculation. The experiment was carried out on old *Moghania* bushes 4' to 8' height. Past records indicate that the insects once raised can continue for many years without having to be replaced. The trials were commenced in *Baisakh* 1989

season and Palas brood was used to infect the species. Bushes were inoculated in June-July with Palas brood for raising Katki crop and harvested in October-November.

**Materials and Methods**

Bushes which were more than 10 years old were taken for the study. The experiment was conducted in a randomised block design with 5 treatments replicated 10 times, as detailed below :

- (1) A patch having 50 *Moghania macrophylla* bushes from the total bushes in the farm were selected.
- (2) The 50 bushes were divided into 10 treatments of 5 each.
- (3) During January-February the bushes were pruned (coppiced).
- (4) Broodlac from Palas trees was collected in June-July season from the Broodlac farm.
- (5) Different doses of broodlac from 50 gms to 250 gms (in 5 treatments 50, 100, 150, 200, 250 gms) were assigned at random in 10 replications (50 gms to 250 gms on 10 bushes each randomly) and inoculated the 50 bushes immediately after harvesting Palas trees of the farm.

(6) After Phunki removal, the enemy insects were removed by spraying Thiodon in proper dose i.e. Endosulfan at 0.05% concentration (prepared by mixing 20 ml. of Thiodon 35 FC in 14 litres of water) (Malhotra *et al.*, 1976).

(7) Harvested the crop in October-November.

(8) The yield of lac in 10 replications, treatment wise was tabulated and analysed.

(9) Another patch having 50 bushes of *Moghania* was selected and treated as control plot, without performing pruning (coppicing) operations and taking the bushes as they are (these were coppiced one year back) and performed the operations as shown in 1 to 7 above for comparison purpose. The data were tabulated and analysed along with the data of experimental plot.

Results and Discussions

The treatments (in this case 5 doses) were allocated randomly in 10 replications. The 50 bush yields from the (5x10) plots were utilised for comparison of treatments (dose wise) comparisons were made using the analysis of variance technique. The data (experimental and control) were tabulated separately and analysed. The yield data is shown in Table 1.

Experimental data of broodlac of 50 bushes were analysed (Table 2).

From the analysis of variance it appears that the treatments are significant.

The yield data of control plots were tabulated and analysed (Table 3).

Table 1

Yield of Broodlac (in gms) of *Moghania macrophylla* bushes obtained in the experimental as well as control plots.

Replications	Yield in Experimental plots						Yield in Control plots				
	Treatments (Different doses)*						Treatments (Different doses)				
	A	B	C	D	E	Total	A	B	C	D	E
1	600	500	1,400	250	450	3,200	500	350	1,600	400	200
2	650	1,250	150	1,400	700	4,150	150	300	1,300	350	1,200
3	350	700	300	1,100	2,200	4,650	500	600	1,550	350	700
4	250	1,100	700	500	300	2,850	600	600	600	350	800
5	400	900	450	500	550	2,800	350	700	1,200	500	500
6	300	650	650	600	300	2,500	150	350	550	1,000	800
7	400	950	600	250	1,050	3,250	200	300	600	600	700
8	100	150	350	450	650	1,700	150	600	900	500	500
9	600	50	250	225	100	1,225	400	nil	700	400	400
10	600	700	200	700	350	2,550	200	100	300	400	400

\* Broodlac doses A= 50 gms, B=100 gms, C=150 gms, D=200 gms, E=250 gms.



Table 2

Source	D.F.	S.S.	M.S.	F.	
Replications	9	1875313	208388.110	1.349	
Treatments	4	503750	125937.500	0.816	→ Not
Error	36	5558750	154409.720	1.000	significant.
Total :	49	7937813			
Treatment means (General mean)			= 577.50 gms		
S.E. of difference between treatment means			= 177.732		
C.D. = 351.465 and coefficient of variation			= 68.04		

Table 3

Source	D.F.	S.S.	M.S.	F.	
Replications	9	1060450	117827.770	1.517	
Treatments	4	2280200	570050.000	7.340	→ Significant.
Error	36	2795800	77061.111	1.000	
Total :	49	6136450			
Treatment means (General mean)			= 561 gms		
S.E. of difference between treatment means			= 124.62		
C.D. = 249.259 and coefficient of variation			= 49.68		

From the above table it appears that the treatments are significant. This shows that in case of *Moghania macrophylla*, 1 year old pruned shoots give better yield as compared to six-month old pruned bushes. If the bushes are coppiced from the ground level at a height of 6" to 12" during January-February the shoots are ready after one year of coppicing.

An attempt has been made to fit multiple regression equation. The relation between

increase of yield and quantity of brood inoculated is found to be expressible in the form  $Y = a + bx + cx^2$  where  $x$  is independent variable (quantity of brood inoculated) and expected yield as dependent variable  $Y$ . The equation obtained is :

$$Y = -117.0 + 9.2342858x - 0.0257143x^2.$$

Optimum dose is calculated by using the coefficients  $b$  and  $c$  which is 179.6 gms say 180 gms.

**Conclusions**

The experiment reveals that in case of *Moghania macrophylla* one year old pruned shoots give better yield of lac as compared

to six month old pruned shoots. Optimum dose of broodlac for proper inoculation of *Moghania macrophylla* has been arrived at 179.6 gms say 180 gms.

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**SUMMARY**

In the present study, the optimum dose of broodlac for proper inoculation of *Moghania macrophylla* bushes has been worked out.

मोघानिया मैक्रोफिला (विल्ड०) पर समुपयुक्त टीका लगाने के लिए सजातक लाख की इष्टतम मात्रा का आकलन

ए० रत्न राव व एन० ब्रह्म राय

सारांश

प्रस्तुत अध्ययन में मोघानिया मैक्रोफिला की झाड़ियों पर समुपयुक्त टीका लगाने के लिए सजातक लाख की इष्टतम मात्रा निर्दिष्ट की गई है।

**References**

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