

SCIENTIFIC NOTES

FABRICATION OF SUITABLE LOW COST BAMBOO MOUNTAGES FOR ERI SILKWORM, *SAMIA RICINI* DONOVAN**Yumnam Debaraj*, N. Ibotombi Singh**,
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Spinning is the last stage of rearing. It requires suitable mounting device to get good quality cocoon for reeling. This is the most important step in silkworm rearing wherein the mature worms will be mounted on proper cocooning device. If care is not taken in this stage, the quality as well as quantity of the cocoon may get affected adversely. In north eastern India, most of the farmers used bundle of dried leaves called 'JALI' for cocooning in ericulture as a common practice since long back. Till recently, a few farmers have started using bamboo *Chandrike* as moutage just like in mulberry silkworm. Many workers have studied the different types of mountages in mulberry silkworm (Geetha Devi et al., 1990; Singh et al., 1994, 1998; Himantharaj, 1995; Singh, 1995; Rajan et al., 2000; Kumaresan et al., 2007) and muga silkworm (Barah & Samson, 1990; Sahu et al., 1998) in different parts of the country. However, in ericulture no detail work has been undertaken for fabrication or performance of mounting devices except the preliminary studies of Debaraj & Brahma (2003); Patil & Savanurmah (1994). Considering the availability of huge potential of bamboo in north eastern India, bamboo can be used as a good raw material for fabrication of low cost mounting devices for eri silkworm. Therefore an attempt was made to fabricate low cost bamboo mountages for eri silkworm in the present study. The data on the comparative performance of the bamboo mountages with other devices are discussed and presented in this write-up.

MATERIALS AND METHODS

The experiment on comparative performance of different cocoon mountages was conducted in five seasons with four treatments including control at Regional Eri Research Station, Mendipathar, Meghalaya. The eri silkworm, Borduar race was reared following standard rearing method (Tray rearing). After completion of rearing, the matured worms were mounted in different mountages @ 50 worms per square feet. Cocoons were harvested after complete pupation. Two new devices of cocoon moutage were fabricated, which are made up of bamboo strips. The first device, BSM-1 is made up of bamboo strips comprising 15 numbers (85 x 3 cm) fixed in parallel on two bamboo strips (60 x 4 cm) making grooves in both ends and tied with binding wire. The distance between two strips is 3 cm. A bamboo sieve fixed on one side supports the whole structure. This type of moutage is single layered and ideal size of each device is 85 x 60 x 4 cm.

The second device, BSM-2 is also made up of bamboo strips comprising 12 numbers (80 x 2.5 cm) fixed in parallel on two bamboo strips or wooden reapers (60 x 3 cm) in both ends tied with nails or binding wire. The distance between two strips is 2 cm. Such complete set of bamboo strip frames are placed one above the other up to 5 frames to make it a multiple layered mountage. The ideal size of each device is 80 x 60 x 22 cm. The third treatment is the traditional method of cocoon mountage called 'JALI', which is made up of bundle of dried leaves of mango, jack fruit, sal, etc. The performance of these devices was compared with bamboo *Chandrike* (1 m dia) as control. The mean data on the comparative performance of different cocoon mountages were collected and analyzed considering all the cocoon characters like good cocoon percentage, inferior cocoon percentage, cocooning percentage, pupation percentage, cocoon weight, cocoon shell weight, cocoon shell percentage, space occupied by each mountage, harvesting time, durability, etc.

RESULTS AND DISCUSSION

Results indicated that good cocoon recovery percentage was recorded maximum in BSM-1 (95.62%) followed by BSM-2 (94.72%) and minimum in Jali (92.66%). Inferior cocoon percentage was maximum (6.93%) in Jali followed by Chandrike (5.61%) and the same was minimum in BSM-2 (4.56%). The cocoon weight, cocoon shell weight and cocoon shell percentage were recorded maximum in BSM-1 (Table 1). The percentage of cocooning and pupation were also higher in newly fabricated bamboo mountages (BSM-1 & BSM-2) than Jali and Chandrike (Table 2). These bamboo mountages occupied less space compared to Jali and Chandrike. The harvesting time of each mountage was calculated and found that the new bamboo mountages took less time for harvesting (7-10 min) whereas the Jali took more time (18-23 min). In mulberry silkworm, the rotatory mountage was found significantly superior than others in all the economic characters (Singh et al., 1998). Similarly, the rotary mountage was found more advantageous and profitable than plastic collapsible mountage and traditional bamboo mountage in mulberry silkworm (Kumaresan et al., 2007; Rajan et al., 2000). In muga silkworm, the box type mountage was recommended for cocooning considering the overall better performance than chandrike and jali (Sahu et al., 1998). In the present finding, the new bamboo mountages may be recommended for large scale utilization in eri silkworm rearing by the farmers considering the better performance compared to other mountages.

Advantages of bamboo strip mountages:

- Cocoons are uniform in size and shape, harvesting is easy as cocoons are made in parallel/ horizontally. Harvesting time is comparatively less in both the bamboo strip mountages.
- Good cocoon recovery and pupation percentages are more. Less number of defective cocoons.
- In an area of 5.32 sq. ft. up to 295 worms can be accommodated in the case of bamboo strip mountage No.1 (BSM-1) (single layered), whereas bamboo strip mountage No. 2 (BSM-2) (multiple layered) can accommodate up to 290 worms in 5.66 sq. ft.
- The mountages are more durable and can last up to 7-8 years (3-4 crops per year).
- Any farmer can prepare themselves with their own material, as bamboo is commonly available in every houses of north eastern India and easy to

handle, cost-effective. The costs of these mountages are more than 50 % less than the chandrike.

- It occupies less space as compared to jali and chandrikes which occupy more space both in use and storing.

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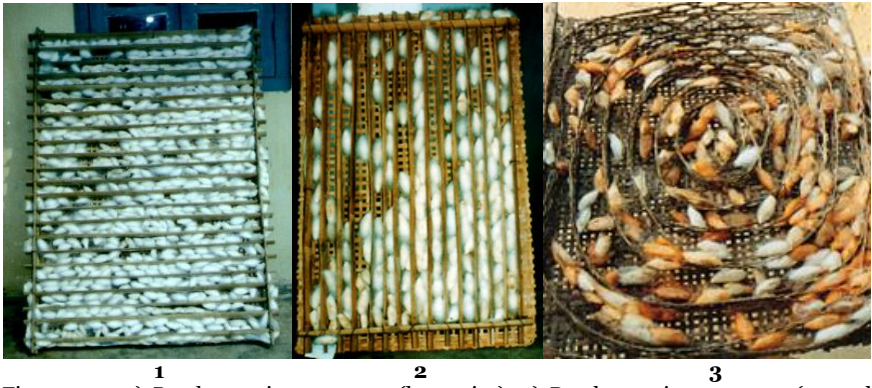
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Table 1. Comparative performance of different cocoon mountages of eri silkworm. (Mean±SD)

Mountages	Good Cocoon (%)	Inferior Cocoon (%)	Cocoon weight (g)	Cocoon shell weight (g)	Cocoon shell percentage
BSM-1	95.62±5.12	5.04±4.64	3.35±0.56	0.44±0.08	13.29±0.79
BSM-2	94.72±3.92	4.56±3.50	3.28±0.56	0.42±0.09	12.70±1.13
JALI	92.66±4.43	6.93±3.91	3.19±0.79	0.41±0.12	12.85±0.93
Chandrike	93.87±4.03	5.61±3.18	3.21±0.68	0.40±0.11	12.35±0.94

Table 2. Performance of different types of mountages of eri silkworm.

Mounta	Cocooning (%)	Pupation (%)	Space occupied by each mintage (sq. ft.)	Harvesting time (min)
BSM-	98.32	97.54	5.32	7 to 9
BSM-	96.76	96.23	5.66	8 to 10
JALI	93.58	91.35	6.25	18 to 23
Chandr	94.57	95.14	9.00	10 to 13



Figures 1-3. 1) Bamboo strip moutingage (large size), 2) Bamboo strip moutingage (normal size), 3) Bamboo chandrike moutingage.



Figures 4-5. 4) Jali moutingage (bundle of dry leaves), 5) Jali moutingage (dry banana leaves).



Figures 6-7. 6) Eri cocoons (white & brick red colour), 7) A heap of eri cocoons.