COMMERCIAL CHARACTERS OF SELECTED ECO-RACES OF ERI SILKWORM (SAMIA CYNTHIA RICINI/ BOISDUVAL) REARED ON CASTOR HYBRID/VARIETY

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ABSTRACT  
Eriiculture is mainly confined to North-Eastern region of India. The states of Assam, Nagaland, Meghalaya and Manipur account nearly 98% of eri silk produced in the country. Eri silkworm is polyphagous in habit, wild in nature and acclimatized to hardy climatic zones of dry lands. The availability of food plants in various states of the country has opened up new vistas for the development of ericulture paving way for alleviation of rural poverty. In the current investigation, selected eco-races of eri silkworm (Borduar, Dhanubanga, Khanapara, Kokrajhar, Mendipathar and Titabar) were reared on DCH-177 hybrid and Local Pink variety of castor (Ricinus communis L.) leaf to record the commercial characters. The study revealed that, eri worms reared on the leaves of Local Pink variety recorded significantly higher matured larval weight, cocoon weight, cocoon yield, shell weight, shell ratio, shell yield, silk productivity and fibroin with least larval duration and sericin content when compared to DCH-177 hybrid. Among the eco-races, Borduar registered better commercial characters except for fibroin where it was more in Kokrajhar eco-race with less sericin content compared to other eco-races. The interaction between castor hybrid / variety x eri silkworm eco-races, Borduar eco-race of eri silkworm reared on the leaves of Local Pink variety of castor stood best for all the commercial characters of eri silkworm except for larval duration and fibroin content, while more fibroin and less sericin contents were recorded in the interaction of Local Pink x Kokrajhar. Thus from the study, it can be concluded that, Borduar eco-race of eri silkworm reared on the leaves of Local Pink variety of castor showed superiority for the commercial parameters and same can be exploited for maximization of eri cocoon production.

Keywords: Eriiculture, Commercial characters, Eco-races, Eri silkworm, Ricinus communis.

INTRODUCTION  
Non-mulberry or wild silks, they represent the finest facets of India’s richest culture and tradition. Among them, eri silk is becoming more popular in recent years, because of its domestication and multivoltine nature. Eri silkworm is polyphagous insect in which castor is principally utilized for feeding eri silkworm with its commercial exploration for large scale rearing and production of eri cocoons (Jolly et al., 1979; Devaiah et al., 1985; Reddy et al., 1989). Eriiculture is ideally considered as subsidiary occupation in a country like India which provides supplementary income to a large number of rural hill folks and tribal people due to the abundant availability of castor leaf in rural areas (Saratchandra, 2003; Suryanarayana, 2005).

The quality of leaves provided to the silkworms for rearing is considered to be the most important factor which greatly influences the production of quality and quantity of cocoons. It has been observed that growth, development and cocoon yield are influenced by the castor genotype and quality of leaves on which worms are reared. Nutritional status of leaves has been considered as a prime factor in the survival of non-mulberry silkworms (Pandey, 1995).

Commercial productivity and reproductive parameters in eri silkworms were influenced by the seasonal variations of the rearing environment. Values of productivity parameters like cocoon weight, shell weight, shell ratio and total silk production were found to be better in winter followed by spring, autumn and rainy seasons while these were inferior during summer. Among the eco-races, efficiency of rearing and silk ratio were found to be superior with Borduar eco-race in comparison to Titabar and Mendipathar eco-races (Ray et al., 2010).

The study conducted by Rajesh Kumar and Vadamalai Elangovan (2012) on evaluation of eco races (Borduar, Titabar, Dhanubhanga and Mendipathar) of eri silkworm through rearing performance revealed that, Titabar eco-race of Philosamia ricini registered better hatching, larval duration, weight of full grown larvae, cocoon yield (by number and weight), single cocoon weight, shell weight, shell ratio, cocoon shape...
variability, pupal period, pupation rate and leaf silk conservation rate as compared to Borduar, Dhanubanga and Mendipathar eco-races during summer. The weight of full grown larvae, yield by number of larvae, yield by weight of larvae, single cocoon weight, shell weight, shell ratio, cocoon shape variability and pupation rate differed significantly among different eco-races of eri silkworm. In this backdrop, the investigation has been undertaken to find out the suitable eco-race(s) and castor hybrid/variety for large scale production of eri cocoons.

MATERIALS AND METHODS
Cultivation of castor
The seeds of DCH-177 hybrid and Local Pink variety were raised at a spacing of 90 x 60 cm in four replications by adopting Randomized Block Design. The recommended package of practices was followed for cultivation of castor under irrigated condition (Anonymous, 2000).

Eri silkworm rearing
Disinfection is a vital part of silkworm rearing, as eri silkworm has been reared under indoor conditions which prone to cause diseases. In this regard, as a preventive measure, rearing house was disinfected with 0.05% of Asthra @ 2.0 l/m². Disease free layings of six eco-races of eri silkworm (Borduar, Dhanubanga, Khanapara, Kokrajhar, Mendipathar and Titabar) was procured from the Central Sericultural Germplasm Resources Centre, Hosur, Tamil Nadu and Central Muga and Eri Research and Training Institute, Jorhat, Assam and incubated at a temperature of 25±1°C and relative humidity of 75±5%.

The eggs were black boxed on the day of pin head stage (8th day of post-oviposition) to ensure uniform hatching. On the day of hatching, the eggs were exposed to light at 8.00 AM for two hours. Rearing was conducted by feeding the leaves of DCH-177 hybrid and Local Pink variety of castor from the day of brushing till cocoon spinning maintaining four replications for each eco-race throughout the rearing. The average temperature and relative humidity recorded during rearing was 25.10°C and 74.08%, respectively. The eri worms were reared in specially designed cages to prevent the mixing of larvae under each treatment and replication-wise as these worms are highly motile in later instars (fourth and fifth).

Commercial characters
Matured larval weight: The weight of five larvae (g) in fifth instar fifth day was recorded by collecting the worms randomly in each treatment, replication-wise and single larval weight was computed.

Total larval duration: The larval duration (days) was obtained by adding the duration of all the five instars in each treatment, replication-wise.

Cocoon weight: Ten cocoons were randomly selected from each treatment, replication-wise and single cocoon weight (g) was computed.

Cocoon yield: Cocoon yield (kg/100 layings) in each treatment, replication-wise was calculated using the formula:

\[
\text{Cocoon yield (kg / 100 layings)} = \frac{\text{CYR x EH / 100 x 30,000}}{\text{NLR}}
\]

Where, CY = Cocoon yield (kg) for 100 layings
CYR = Cocoon yield in one replication (g)
EH = Egg hatching
NLR = Number of larvae per replication

Shell weight: After removing the pupa and larval exuvium from the cocoons, the shell weight (g) was recorded in each treatment, replication-wise.

Shell ratio: The shell ratio (%) was calculated in each treatment, replication-wise using the formula:

\[
\text{Shell ratio} = \frac{\text{Shell weight (g)}}{\text{Cocoon weight (g)}} \times 100
\]

Shell yield: Shell yield (kg/100 layings) in each treatment, replication-wise was calculated using the formula:

\[
\text{Shell yield (kg / 100 layings)} = \frac{\text{SYR x EH / 100 x 30,000}}{\text{NLR}}
\]

Where, SY = Shell yield (kg) for 100 layings
SYR = Shell yield in one replication (g)
EH = Egg hatching
NLR = Number of larvae per replication
Silk productivity: The silk productivity (cg/day) was calculated in each treatment, replication-wise using the formula:

\[ \text{Silk productivity (cg/day)} = \frac{\text{Shell weight (g)}}{\text{Fifth instar larval duration (days)}} \]

Fibroin and sericin: The cocoon shell was treated with 2% KOH at 70-80°C for five minutes, constantly stirring till the cocoon became fluffy. The fluffy material was then washed thoroughly in tap water and further treated with diluted acetic acid (1g/liter) to neutralize the alkali. After another thorough wash in water the fluff was dried at 90-100°C in hot air oven. The weight of fibroin thus obtained after dissolution of sericin was recorded. The fibroin and sericin contents in cocoon shell were calculated using the formula:

\[ \text{Sericin (\%)} = \frac{\text{Weight of fibroin (g)}}{\text{Weight of cocoon shell (g)}} \times 100 - \text{Fibroin (\%)} \]

Statistical analysis of the data
The data obtained in the current investigation was subjected to two-way ANOVA through Completely Randomized Design for test of significance (\( p \leq 0.05 \) and \( p \leq 0.01 \)) as per Sundarraj et al. (1972) through SPSS statistical package (ver. 21.0).

RESULTS
The results pertaining to commercial characters in selected eco-races of eri silkworm are presented in the form of tables and are explained in the following pages.

Matured larval weight (g)
Matured larval weight varied significantly when selected eco-races of eri silkworms reared on the leaves of castor hybrid/variety. Matured larval weight was higher when eri silkworms reared on the leaves of Local Pink variety (7.664 g) as compared to DCH-177 hybrid (7.639 g). Among the eco-races of eri silkworm, matured larval weight was more in Borduar (9.205 g) followed by Kokrajhar (8.642 g), Titabar (7.576 g), Mendipathar (7.244 g), Dhanubanga (6.820 g) and it was less in Khanapara (6.421 g). In respect of interaction between castor hybrid/variety and eco-races, matured larval weight was highest between Local Pink x Borduar (9.241 g), while DCH-177 x Borduar (9.169 g), Local Pink x Kokrajhar (8.656 g), DCH-177 x Kokrajhar (8.629 g), Local Pink x Titabar (7.617 g), DCH-177 x Titabar (7.535 g), Local Pink x Khanapara (6.448 g) and DCH-177 x Khanapara (6.393 g) stood next in the order with later being the lowest (Table 1).

Total larval duration (days)
Total duration of larvae did not differ much when selected eco-races of eri silkworms reared on the leaves of castor hybrid/variety. In respect of host, larval duration ranged between 25.44 days (DCH-177) and 25.81 days (Local Pink). Among the eco-races of eri silkworm, larval duration varied from 25.27 days (Borduar) to 25.77 days (Titabar). In interaction, larval duration ranged between 25.08 days (DCH-177 x Borduar) and 26.04 days (Local Pink x Titabar) (Table 1).

Cocoon weight (g)
Notable variations were evident with respect to cocoon weight between castor hybrid and variety, higher being in Local Pink variety (3.449 g) over DCH-177 hybrid (3.096 g). Cocoon weight varied significantly among the eco-races of eri silkworm with highest value being in Borduar (3.545 g) as compared to Kokrajhar (3.410 g), Titabar (3.330 g), Dhanubanga (3.206 g) and it was less in Khanapara (2.959 g). In the interaction between castor hybrid/variety and eco-races of eri silkworm, significantly higher cocoon weight was registered in Local Pink x Borduar (3.715 g) followed by Local Pink x Kokrajhar (3.581 g), Local Pink x Titabar (3.512 g), Local Pink x Dhanubanga (3.447 g), DCH-177 x Borduar (3.375 g), Local Pink x Mendipathar (3.374 g) and it was lower in DCH-177 x Khanapara (2.850 g) (Table 1).

Cocoon yield (kg/100 layings)
Cocoon yield did vary statistically between castor hybrid and variety when leaves of these were offered as food for the eri silkworm, highest being in Local Pink (82.78 kg) over DCH-177 (74.31 kg). In respect of eco-races of eri silkworm, cocoon yield was significantly more in Borduar (85.07 kg) followed by Kokrajhar (81.84 kg), Titabar (79.93 kg), Dhanubanga (76.95 kg), Mendipathar (76.48 kg) and it was less in Khanapara (71.00 kg). In interaction between castor hybrid/variety and eco-races, the cocoon yield was significantly higher in Local Pink x Borduar (89.16 kg) as compared to Local Pink x Kokrajhar (85.93 kg), Local Pink x Titabar (84.30 kg), Local Pink x Dhanubanga (82.73 kg), DCH-177 x Borduar (80.99 kg), Local Pink x Mendipathar (80.97 kg) and cocoon yield was lower with DCH-177 x Khanapara (68.40 kg) (Table 1).
Table 1: Rearing parameters of selected eco races of eri silkworm reared on castor hybrid/variety

<table>
<thead>
<tr>
<th>Eco-race of eri silkworm (E)</th>
<th>Matured larval weight (g)</th>
<th>Total larval duration (days)</th>
<th>Cocoon weight (g)</th>
<th>Cocoon yield (kg/100 layings)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Castor hybrid/variety (C)</td>
<td>Castor hybrid/variety (V)</td>
<td>Castor hybrid/variety (C)</td>
<td>Castor hybrid/variety (V)</td>
</tr>
<tr>
<td></td>
<td>DCH-177       Local Pink Mean</td>
<td>DCH-177       Local Pink Mean</td>
<td>DCH-177       Local Pink Mean</td>
<td>DCH-177       Local Pink Mean</td>
</tr>
<tr>
<td>2. Dhanukerga</td>
<td>6.059         6.705         6.825          25.50       25.92       25.70       2.965       3.447       3.206       71.16       82.73       78.95</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.639         7.664         7.651          25.44       25.81       25.62       3.096       3.449       3.273       74.31       82.78       79.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>E=79.18**     —                      E=10742.62**       —                      E=10195.66**       —                      E=9415.80**       —                      E=8177.54**</td>
<td></td>
<td></td>
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</tbody>
</table>

** Highly significant (p≤0.01) **

Shell weight (g)

Shell weight was significantly varied between the castor hybrid and variety with higher being in Local Pink variety (0.490 g) when compared to DCH-177 hybrid (0.379 g). Among the eco-races of eri silkworm, shell weight was significantly more in Borduar (0.515 g) and next best were Kokrajhar (0.467 g), Titabar (0.439 g), Mendipathar (0.437 g) and Dhanubanga (0.392 g) and it was less in Khanapara (0.358 g). In interaction between castor hybrid/variety and eco-races, significantly higher shell weight was found in Local Pink x Borduar (0.517 g), followed by Local Pink x Kokrajhar (0.514 g), Local Pink x Mendipathar (0.514 g), Local Pink x Titabar (0.480 g), DCH-177 x Borduar (0.467 g) and it was lower in DCH-177 x Khanapara (0.294 g) (Table 2).

Shell ratio (%)

Shell ratio was highly significant variation between the castor hybrid and variety with highest being in Local Pink (14.18 %) as compared to DCH-177 (12.19 %). Among the eco-races of eri silkworm, shell ratio was significantly higher in Borduar (14.49 %) followed by Kokrajhar (13.65 %), Mendipathar (13.61 %), Titabar (13.13 %), Dhanubanga (12.18 %) and it was lower in Khanapara (12.05 %). In the interaction, Local Pink x Borduar recorded highest shell ratio (15.15%), while Local Pink x Mendipathar (15.21 %), Local Pink x Kokrajhar (14.44 %), DCH-177 x Borduar (13.83 %), Local Pink x Khanapara (13.79 %), Local Pink x Titabar (13.64 %) and DCH-177 x Khanapara (10.32 %) stand next in the order with later being the lowest (Table 2).

Shell yield (kg/100 layings)

Shell yield is the better indicator of produce of eri worms, as the cocoons are of open type and are marketed in the form of shell. Shell yield differ significantly between castor hybrid and variety with maximum yield being in Local Pink (11.75 kg) over DCH-177 (9.104 kg). Among the eco-races of eri silkworm, shell yield was significantly highest in Borduar (12.35 kg) when compared to Kokrajhar (11.20 kg), Titabar (10.52 kg), Mendipathar (10.48 kg), Dhanubanga (9.408 kg) and it was lowest in Khanapara (8.604 kg). In the Interaction between castor hybrid/variety and eco-races of eri silkworm, shell yield was more in Local Pink x Borduar (13.50 kg) followed by Local Pink x Kokrajhar (12.40 kg), Local Pink x Mendipathar (12.32 kg), Local Pink x Titabar (11.50 kg), DCH-177 x Borduar (11.21 kg), Local Pink x Dhanubanga (10.63 kg), Local Pink x Khanapara (10.15 kg), DCH-177 x Kokrajhar (10.00 kg), DCH-177 x Titabar (9.540 kg), DCH-177 x Mendipathar (8.635 kg), DCH-177 x Dhanubanga (8.185 kg) and it was less in DCH-177 x Khanapara (7.060 kg) (Table 2).

Table 2: Cocoon parameters of selected eco races of eri silkworm reared on castor hybrid/variety

<table>
<thead>
<tr>
<th>Eco-race of eri silkworm (E)</th>
<th>Shell weight (g)</th>
<th>Shell ratio (%)</th>
<th>Shell yield (kg/100 layings)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Castor hybrid/variety (C)</td>
<td>Castor hybrid/variety (V)</td>
<td>Castor hybrid/variety (C)</td>
</tr>
<tr>
<td></td>
<td>DCH-177       Local Pink Mean</td>
<td>DCH-177       Local Pink Mean</td>
<td>DCH-177       Local Pink Mean</td>
</tr>
<tr>
<td>1. Borduar</td>
<td>0.467          0.523          0.515          13.83       15.15       14.49       11.21       13.50       12.35</td>
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</tr>
<tr>
<td>2. Dhanukerga</td>
<td>0.341          0.443          0.392          11.51       12.85       12.18       8.185       10.06       9.808</td>
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</tr>
<tr>
<td>3. Kromangar</td>
<td>0.294          0.425          0.355          10.22       12.02       10.20       7.000       10.15       8.604</td>
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</tr>
<tr>
<td>4. Kokrajhar</td>
<td>0.417          0.517          0.467          12.06       14.44       13.65       10.00       12.40       11.20</td>
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</tr>
<tr>
<td>5. Mendipathar</td>
<td>0.360          0.514          0.437          12.00       15.21       13.61       8.635       12.32       10.48</td>
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<tr>
<td>6. Titabar</td>
<td>0.398          0.480          0.439          12.62       13.64       13.13       9.240       11.50       10.52</td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.379          0.490          0.435          12.19       14.18       13.10       9.104       11.75       10.43</td>
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</tbody>
</table>

** Highly significant (p≤0.01) **
Silk productivity (cg/day)

Silk productivity varied considerably between castor hybrid and variety with more being in Local Pink (6.994 cg/day) as compared to DCH-177 (5.419 cg/day). In respect of eco-races, silk productivity was better with Borduar (7.353 cg/day) and next best were Kokrajhar (6.667 cg/day), Titabar (6.262 cg/day), Mendipathar (6.236 cg/day), Dhanubanga (5.600 cg/day) and the same was lower in Khanapara (5.121 cg/day). In the interaction between castor hybrid/variety and eco-races of eri silkworm, significantly highest silk productivity was registered in Local Pink x Borduar (8.038 cg/day) followed by Local Pink x Kokrajhar (7.382 cg/day), Local Pink x Mendipathar (7.331 cg/day), Local Pink x Titabar (6.846 cg/day), DCH-177 x Borduar (6.668 cg/day), Local Pink x Dhanubanga (6.328 cg/day), Local Pink x Khanapara (6.040 cg/day), DCH-177 x Kokrajhar (5.951 cg/day) and it was lowest with DCH-177 x Khanapara (4.203 cg/day) (Table 3).

Fibroin and sericin (%)

Significantly higher fibroin and lower sericin contents were obtained when eco-races of eri silkworms were reared on the leaves of Local Pink variety (84.32 and 15.68%) and lower fibroin and more sericin contents were found in DCH-177 hybrid (84.07 and 15.93%). Among the eco-races of eri silkworm, highest fibroin and lowest sericin contents were registered in Kokrajhar (86.36 and 13.64%) followed by Titabar (84.64 and 15.36%), Mendipathar (84.12 and 15.88%), Borduar (83.90 and 16.10%), Dhanubanga (83.75 and 16.25%) and lowest fibroin and highest sericin contents were recorded in Khanapara (82.38 and 17.62%). In interaction of castor hybrid/variety and eco-races, significantly more fibroin and less sericin contents were found in Local Pink x Kokrajhar (86.37 and 13.63%) when compared to DCH-177 x Kokrajhar (86.35 and 13.65%), Local Pink x Titabar (84.86 and 15.15%), DCH-177 x Titabar (84.43 and 15.57%), DCH-177 x Borduar (84.43 and 16.58%), Local Pink x Borduar (84.38 and 15.63%) and less fibroin and more sericin contents were found in Local Pink x Khanapara (82.35 and 17.66%) (Table 3).

Table 3: Post-cocoon parameters of selected eco races of eri silkworm reared on castor hybrid/variety

<table>
<thead>
<tr>
<th>Eco-race of eri silkworm (F)</th>
<th>Silk productivity (cg/day)</th>
<th>Fibroin (%)</th>
<th>Sericin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Castor hybrid/variety (C)</td>
<td>Castor hybrid/variety (C)</td>
<td>Castor hybrid/variety (C)</td>
</tr>
<tr>
<td></td>
<td>DCH-177</td>
<td>Local Pink</td>
<td>Mean</td>
</tr>
<tr>
<td>1. Borduar</td>
<td>6.668</td>
<td>8.038</td>
<td>7.353</td>
</tr>
<tr>
<td>2. Dhanubanga</td>
<td>4.873</td>
<td>6.328</td>
<td>5.600</td>
</tr>
<tr>
<td>3. Khanapara</td>
<td>4.203</td>
<td>6.040</td>
<td>5.121</td>
</tr>
<tr>
<td>4. Kokrajhar</td>
<td>5.951</td>
<td>7.302</td>
<td>6.667</td>
</tr>
<tr>
<td>5. Mendipathar</td>
<td>5.141</td>
<td>7.331</td>
<td>6.236</td>
</tr>
<tr>
<td>6. Titabar</td>
<td>5.678</td>
<td>8.646</td>
<td>7.262</td>
</tr>
<tr>
<td>Mean</td>
<td>5.419</td>
<td>6.994</td>
<td>6.206</td>
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</table>

F-value (2 way ANOVA)

<table>
<thead>
<tr>
<th></th>
<th>C = 12883.81**</th>
<th>C = 750.94**</th>
<th>C = 744.62**</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>2096.40**</td>
<td>1838.22**</td>
<td>13471.07**</td>
</tr>
<tr>
<td>C x E</td>
<td>117.53**</td>
<td>292.50**</td>
<td>290.72**</td>
</tr>
</tbody>
</table>

**: Highly significant (p≤0.01)

DISCUSSION

In the current study, emphasis was laid to screen six selected eco-races of eri silkworm for commercial characters viz., matured larval weight, Total larval duration, cocoon weight, cocoon yield, shell weight, shell ratio, shell yield, silk productivity, fibroin and sericin using the leaves of DCH-177 hybrid and Local Pink variety of castor. Among the eco-races, Borduar eco-race reared on the leaves of Local Pink castor variety excelled better for majority of the commercial characters except for fibroin content where Kokrajhar eco-race results in higher fibroin and less sericin contents and next in the order were Kokrajhar and Titabar eco-races when they were reared on Local Pink variety of castor.

Ray et al. (2010) studied the rearing performance of different eco-races (Borduar, Titabar and Mendipathar) of eri silkworm during winter season in Odisha. The parameters considered for the investigation includes hatching percentage, larval duration, larval weight, cocoon weight, shell weight, pupal weight, shell ratio and effective rate of rearing (ERR). These parameters were considered as the index of reproductive and commercial productivity. Among the eco races of eri silkworm, Borduar proved better than the other eco-races.

Prasanna et al. (2013) reported significant difference in larval, cocoon and grainage parameters with five castor genotypes during three seasons. The leaves of castor genotypes fed on local variety registered shorter larval duration, higher matured larval weight, cocoon weight, shell weight, pupal weight, shell ratio, ERR, pupal period, fecundity and hatchability. However, the DCS-9 genotype recorded longer larval duration,
lower matured larval weight, cocoon weight, shell weight, pupal weight, ERR, pupal period and hatchability, while shell ratio was less in 48-1.

The eco-races of eri silkworm namely Borduar, Mendipathar, Titabar and Dhanubhanga were reared under different temperature and relative humidity i.e., 15 ± 1°C to 21 ± 1°C and 56 ± 5% to 64 ± 5% during winter season and 22 ± 1°C to 28 ± 1°C, 65 ± 5% to 72 ± 5% during spring season and the effects of temperature and relative humidity were observed at different stages of larval duration (during spring 27.75 days and during winter 18.00 days), larval weight (during spring 6.15 g and during winter 7.65 g), single cocoon weight (during spring 3.45 g and during winter 3.52 g), single shell weight (during spring 0.48 g and during winter 0.56 g) and shell ratio (spring 14.10 % and winter 16.19 %). The study indicates that the effect of low temperature and low RH (%) during winter was more on larval duration, larval weight, single cocoon weight, shell weight and shell ratio than spring rearing season (Rajesh Kumar and Vadamalai Elangovan, 2017).

CONCLUSION

From the foregoing account, it can be concluded that, commercial characters of eri silkworm varied considerably among the selected eco-races of eri silkworm when they were reared on the leaves of DCh-177 hybrid and Local Pink variety of castor. Eco-race, Borduar performed better by registering superior commercial characters over other eco-races when it was reared on Local Pink variety of castor and the same can be commercially exploited to maximize the eri cocoon production.

REFERENCES