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A comparative analysis in relation to impacts of zonal differences on the productivity and qualities of tasar cocoons of mutant strains of *Antheraea mylitta* D.

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Abstract
This Research Article is an effort to study the impacts of zonal differences on the productivity and qualities of tasar cocoons of mutant strains of *Antheraea mylitta* D. Results obtained are indicative of the fact that the zonal differences influence the relative performances of mutant strains of *Antheraea mylitta* D in respect of productivity and quality of tasar cocoons. The results have clearly shown that the productivity and quality of tasar cocoons of Jharkhand and Madhya Pradesh zones are relatively better and superior to Orissa, West Bengal and Bihar Zones of tasar producing states. The performances of Daba–blue in respect of productivity and qualities of tasar cocoons have been found evidently better than the Daba–yellow and Daba–almond. The results obtained appear to be the outcome of genetic variability among the three mutant strains of *A. mylitta* D. on account of relative differences in their physio–genetic makeup.

Keywords: ecotype, cocoon weight, shell weight, shell ratio, filament length

Introduction
Antheraea mylitta is an indigenous traditional tasar producing insect, which exists in the forms of nearly 20 ecotypes distributed all over the ecological zones of tropical tasar belts in our Country. The different ecotypes of *Antheraea mylitta*. in spite of having the same chromosomal number differ among themselves in their quantitative and qualitative characters. These ecotypes are uni, bi and trivoltine. Different local names have been assigned to each group by the tribals of this area eg. Daba, Raily, Model, Naila, Bogari etc. Among these, the Daba ecotypes of *Antheraea mylitta* D. is distributed to the different localities of tasar belts particularly in the states of Bihar, Jharkhand and Madhya Pradesh. The tribals usually reared this ecotype by preparing the eggs in captivity and rear the larvae outdoor on foliages of *Terminalia arjuna, Terminalia tomentosa* and *Shorea robusta* during Seed Crop (July-August) and Commercial Crop Seasons (September-October).

Materials and Methods
Healthy and disease free tasar cocoons of three mutant strains of five different tasar producing zones of India namely the states of Bihar, Jharkhand, Madhya Pradesh, Orissa and West Bengal were collected from their respective sites of rearing areas. The cocoons were analysed and assorted and put under normal laboratory conditions for proper acclimatization for 15 days. The uniform tasar cocoons of three mutant strains of *A. mylitta* namely Am-Blue, Am-yellow and Am-almond along with its Control Am-Green were properly processed under grainage operations as suggested by Krishnaswamy (1973) [3].
100 tasars larvae divide in five replications (20X5) for each mutant strain along with its control were mounted on the foliages of Arjuna Plant till cocoon formation. The rearing of different mutant strains with their control was carried out for both the seasons. The data in respect of E.R.R. (Effective Rate of Rearing), Cocoon weight, Shell Weight, Shell Ratio, length of fibre and size of fibre were recorded carefully for each set of mutant strain and control during both the season in respect of productivity and relative qualities of tasar cocoons of all the three mutant strains of *Antheraea mylitta* of five different zones of tasar culture. The data were further statistically analysed, correlated and finally presented in the tables.

Results and Discussion
The relative impacts of five different tropical tasar producing zones namely jharkhand, Bihar, Orissa, Madhya Pradesh and West Bengal on the productivities and qualities of tasar cocoons of three mutant strains of *Antheraea mylitta* D. namely Am-blue, Am-yellow and Am-almond along with its control have been evaluated in respect of Effective Rate of Rearing (E.R.R%), Cocoon weight, Shell weight, Shell ratio, Filament length and size of fabrics and results so obtained in respect of relative impacts of zonal differences on the productivity and qualities of tasar cocoons of three different mutant strains of *Antheraea mylitta* are recorded in tables 1 to 3. Graphiacal representation of zonal differences on the productivity and qualities of tasar cocoons in respect of E.R. R. of three different mutant strains of *Antheraea mylitta* has been recorded in Figure 1.

Table 1: Table showing relative impacts of zonal differences on the productivity and quality of cocoons of Am-Blue strain of *Antheraea mylitta*

Sl. No.	Parameters of rearing	Jharkhand	Bihar	Orissa	Madhya Pradesh	West Bengal
1	E.R.R (%)	45	32	39	40	35
2	Cocoon weight (gm)	11.92	10.83	11.12	11.80	10.51
3	Shell weight (gm)	1.54	1.31	1.40	1.48	1.28
4	Shell ratio (%)	12.10	11.32	11.70	11.98	11.10
5	Filament length (cm)	6629	6521	6590	6610	6510
6	Size of fibre (m)	2.5	1.5	1.8	2.0	1.2

E.R.R. = Effective Rate of Rearing Am = *Anthearea mylitta*

Table 2: Table showing relative impacts of zonal differences on the productivity and quality of cocoons of Am-Yellow strain of *Antheraea mylitta*

Sl. No.	Parameters of rearing	Jharkhand	Bihar	Orissa	Madhya Pradesh	West Bengal
1	E.R.R (%)	43	33	36	38	33
2	Cocoon weight (gm)	11.89	10.73	11.02	11.78	10.45
3	Shell weight (gm)	1.45	1.28	1.35	1.40	1.21
4	Shell ratio (%)	11.95	10.75	11.58	11.90	10.89
5	Filament length (cm)	6600	6420	6485	6510	6393
6	Size of fibre (m)	2.0	1.2	1.5	1.8	1.1

E.R.R. = Effective Rate of Rearing Am = *Anthearea mylitta*

Table 3: Table showing relative impacts of zonal differences on the productivity and quality of cocoons of Am-Almond strain of *Antheraea mylitta*

Sl. No.	Parameters of rearing	Jharkhand	Bihar	Orissa	Madhya Pradesh	West Bengal
1	E.R.R (%)	42	29	34	36	32
2	Cocoon weight (gm)	11.80	10.69	10.92	11.52	10.12
3	Shell weight (gm)	1.35	1.20	1.30	1.32	1.10
4	Shell ratio (%)	11.85	10.81	11.35	11.75	10.72
5	Filament length (m)	6590	6352	6382	6398	6371
6	Size of fibre (m)	1.5	1.3	1.7	1.8	1.4

E.R.R. = Effective Rate of Rearing Am = *Anthearea mylitta*

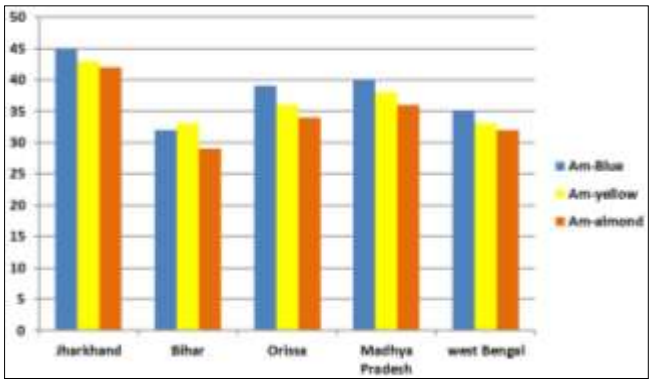

Fig 1: Graphiacal representation of zonal differences on the productivity and qualities of tasar cocoons in respect of E.R. R. of three different mutant strains of *Antheraea mylitta*

Results obtained are indicative of the fact that the zonal differences influence the relative performances of mutant strains of *Antheraea mylitta* D in respect of productivity and quality of tasar cocoons. The results have clearly shown that the productivity and quality of tasar cocoons of Jharkhand and Madhya Pradesh zones are relatively better and superior to Orissa, West Bengal and Bihar Zones of tasar producing states. The performances of Daba–blue in respect of productivity and qualities of tasar cocoons have been found evidently better than the Daba–yellow and Daba–almond. The results obtained appear to be the outcome of genetic variability among the three mutant strains of *A. mylitta* D. on account of relative differences in their physio–genetic makeup.

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