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Research Article

DIFFERENT HYBRID BREEDS OF BOMBYX MORI L. DISEASE SUSCEPTIBILITY IN AUTUMN SEASON OF PUNJAB CLIMATE

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ABSTRACT

The mulberry silkworm is susceptible to various diseases and is attacked by many fungus and protozoa. During the study which was carried out on the bivoltine hybrid silkworm breeds viz. SK1*SK6, SK8*SK9, KSO1*SP2, CSR12*CSR6, CSR16*, CSR17* CSR18*CSR19 and control SH6*NB4D2 after 3rd moult, with 400 larvae were maintained. Grasserie and Flacherie disease were recorded during spinning. The results shows that disease susceptibility was less in bivoltine hybrid KSO*SP2 followed by SK1*SK6 and CSR16*CSR17 in comparison to other breeds. These were more resistant towards Grasserie and Flacherie diseases compared to other in autumn season during experiment in Punjab.

Keywords: *Grasserie, Flacherie, Disease, Susceptibility and Breed*

INTRODUCTION

The mulberry silkworm is susceptible to various diseases and is attacked by many fungus and protozoan. These diseases of larvae cause great trouble and loss to the silkworms. So each and every of the silkworm diseases are to be treated seriously, otherwise can create epidemic (Kumar *et al.*, 2002). There are four major diseases that are caused by parasites and pests. Among four, two are very important in this region (Gupta, 2006).

The Silkworm "*Bombyx mori* L" is prone to different types of diseases of caterpillars. The lives of caterpillars can be saved in many ways like they are scattered in the rearing rooms from the carcasses and faces of diseased caterpillars. These infectious microbes left over become an easy source of secondary contamination and spread of diseases (Gowda *et al.*, 2007). But not all silkworm breeds are immune completely to diseases. Some preliminary screening of multivoltine x bivoltine hybrids are more prone as compare to performance by pure races? In India silkworm rearing are usually conducted in dwelling houses, where sometimes sericulturists did not prefer disinfections of rooms and appliances. However, earlier no serious attempts have been made to study different races for their relative's susceptibility of two important disease naming grasserie and flacherie; these are the two major causes of cocoon crop failure in India (Begum *et al.*, 2008). Keeping this in view the present study of disease Susceptibility of caterpillar has been undertaken here for few bivoltine hybrid breeds, which are popular in the field, and was tested under autumn season of Punjab.

MATERIALS AND METHODS

Four bivoltoine hybrid viz SK1*SK6, Sk8*SK9, CSR12* CSR6*CSR16, CSR17* CSR18*CSR19 with respect to control SH6*NB4D2 breeds were selected for experiment at Deptt. of Zoology, Dinangar Punjab to evaluate their disease susceptibility for autumn rearing season (Singh *et al.*, 2009). In each tray 400 larvae were maintained, and after 3rd moult three replicate of 400hundres larvae of each breed were maintained. Grasserie and Flacherie diseases were recorded on everyday onset of spring. The ERR (Excess Reserve Ratio) % was assessed on the basis of number of cocoons harvested, out of the total number of cocoon some larvae taken after 2nd moult for experimentation (Kumar *et al.*, 2010). In autumn season, average temperature and humidity in natural conditions were recorded.

RESULTS AND DISCUSSION

On the basis of experiment conducted, the ERR% value in autumn season was recorded maximum in SK1*SK6, followed by SK8*SK9 then CSR16*CSR17, CSR12*CSR6, CSR 8*CSR19, SK8*SK9 as compared to control breed SH 6*NB4D2 (Yadav *et al.,* 2010) for both diseases.

On the basis of result obtained, percentage of Grasserie disease caused in autumn season in Punjab climate condition follow same pattern like this SK1*SK6, SK8*SK9, CSR12*CSR6*CSR16, CSR17*CSR18* CSR19 as compare to control breed SH6*NB4D (Kumar *et al.,* 2011).

Results obtained from disease % of Flacherie in autumn season of Punjab was recorded like this SK1*SK6, SK8*SK9, CSR12*CSR6* CSR16, CSR17*CSR18*CSR19, it was with respect by control breed SH6*NB4D2 (shown in following table). So far grasserie disease % obtained in breed with respect to other breeds was same shown in following Table 1 (Kumar *et al.*, 2011).

Table 1: Performance of different bivoltine breeds under field conditions with regard to grasserie, flacherie

Bread	ERR	Grasserie Disease %	Flacherie Disease %	Total
SK1*SK6	91.78	5.68	3.82	9.50
SK8*SK9	80.66	9.89	10.55	20.44
CSR12*CSR6*CSR16	93.79	3.56	9.98	6.68
CSR17*CSR18*CSR19	85.89	7.58	7.87	15.45
SH6*NB4D2(Control)	80.84	7.62	7.93	15.55

Performance of different bivoltine breeds under field conditions with regard to grasserie, flacherie are presented in above Table. The study proved that bivoltine breeds, exhibited highest disease occurance. Unfavorable seasonal fluctuations during this time appear to influence the high incidence of viral grasserie and flacherie disease (Hussain *et al.*, 2011)

Temperature and humidity have great influence on the occurrence of disease viz grasserie, flacherie. It has found that the temperature and humidity have a significant correlation with both diseases. Further, it has been found that in these conditions higher susceptibility of disease was observed in some breeds. It is worthy to mention that the bivoltine hybrids tested in this experiment was screened under field condition, therefore bivoltine hybrid breeds follow this pattern CSR12*CSR6*CSR16, Sk1*SK6, CSR17*CSR178* CSR19 and SK8*SK9 for autumn season showed better tolerance to disease under Punjab climate conditions, breeds which showed least disease susceptibility of grasserie and flacherie is CSR12*CSR6*CSR16 in autumn season (Rahmathulla *et al.,* 2012). Breeds show variation in their susceptibility in different seasons, similarly the present finding also showed that different breeds have shown their different susceptibility to grasserie and flacherie. In present study higher incident of grasserie and flacherie % was recorded in SK8*SK9 as compared to other breeds.

REFERENCES

Begum NAR, Basavaraja H K, Joge P G, and Palit A K (2008). Evaluation and identification of promising bivoltine Breeds in the silkworm, *Bombyx mori* L, *International Journal of Industrial Entomology* **16**(1) 15–20.

Gowda BN and N M Reddy (2007). Influence of different environmental conditions on cocoon parameters and their effects on reeling performance of bivoltine hybrids of silkworm, *Bombyx mori*, *International Journal of Industrial Entomology* **14(**1) 15–21.

Gupta V, Jaiswal K Gangwar, P Diwvedi, A Srivastava and R Kumar (2006). Disease susceptibility in Different in Different Hybrid Breeds of *Bombyx mori* L in Autumn Season of Uttar Pradesh climate

Condition. Regional Seminar on Prospects of Sericulture as an Economic Enterprise in North –West India, 286-288.

Hussain SA Khan, M Naeem and AU Mohsin (2011). Effect of relative humidity on factors of seed cocoon production in some inbred silk worm (*Bombyx mori*) lines. *International Journal of Agriculture and Biology* **13**(1) 57–60.

Kumar N S, Basavaraja H K, Kumar C M K, Reddy N M and Datta R K (2002). On the breeding of "CSR18 × CSR19"-a robust bivoltine hybrid of silkworm, Bombyx mori L. for the tropics. *International Journal of Industrial Entomology* **5** 155–162.

Kumar R and Elangovan Rearing (2010). Performance of Eri Silkworm Philosamia ricini in Monsoon Season of Uttar Pradesh. *Asian Journal of Experimental Biological Science* **1** 303-310.

Kumar SN, Murthy DPP and Moorthy SM (2011). Analysis of heterosis over environments in Silkworm (Bombyx mori L.). *ARPN Journal of Agricultural and Biological Science* **6** 39-47.

Rahmathulla V K (2012). Management of Climatic Factors for Successful Silkworm (*Bombyx mori* L.) Crop and Higher Silk Production: A Review, *Psyche a Journal of Entomology*; Article ID 121234, 1-12.

Singh T, Bhat MM and Khan MA (2009). Insect adaptations to changing environments - temperature and humidity. *International Journal of Industrial Entomology*, 19 155-164.

Virk JS, Kaur R and Kaur P (2009). Performance of eri silkworm, Samia cynthia ricini Boisduval in different seasons of Punjab. *Indian Journal of Sericulture* **48** 78-80.

Yadav GS and Mahobiam (2010). GP, Effect of different food leaves on rearing performance in Indian tropical tasar silkworm Antheraea mylitta Drury (Lepidoptera: Saturniidae). *Uttar Pradesh Journal of Zoology* **30** 145-152.