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Short Communication

Effect of Iron Supplementation on Total Performance of Multivoltine Silkworm (HM) *B. MORI (L)*

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Abstract

The Mulberry leaves fed to silkworm were supplemented with $FeCl_3$ in different dosages. The concentration of FeCl3 was 0.01 mg/lit given by spraying and its effect on silkworm was studied. The larval weight and economic parameters such as cocoon weight, shell weight and shell ratio were significantly affected. The effect of iron chloride in relation to larval growth and total performance is discussed.

Keywords: Mulberry leaves, silkworm, economic parameters.

Introduction

The deficiency of iron in mulberry leaves has been observed due to several reasons. Phytophagous insect *B.mori (L)* is totally dependent on mulberry leaves for their nutritive elements. Mineral are not synthesized within insects although they are essential elements and affect various metabolic processes[1]. recently scientists have highlighted the role of mineral requirements for the growth of silkworm. The studies aim at better growth as well as direct to improve economic character.

The present study aims not only to know the vital role of iron for enhancement of cocoon characters but also to establish the proper number of dosage which is beneficial for higher yield.

Material and Methods

Aqueous solution of iron chloride of 0.01 mg/lit concentration was prepared and stored in cool place. Solution was sprayed over the leaves by sprayer. Before providing these fortified leaves to the worms for feeding the leaves were dept for some time to allow the solution to be absorbed by leaves and excess of water on leaves would evaporate. 0.5 ml of solution was sprayed over 1 kg of leaves. 12 dfls were reared as per schedule recommended by krishnaswmi[2]. DFLs were divided in 4 batches. 1st batch was considered as control batch which was fed with leaves supplemented with iron chloride as once, twice and thrice a day respectively. Parameter was recorded from each batch.

Results and Discussion

Observations n larval weight, cocoon weight, shell weight and shell ratio are presented in table 1. Ito and Nimura[3] have studied the performance of silkworm by supplementation of iron as a nutrient. The same has been suggested by House[1] and Miyoshi[4]. The total performance with iron exhibit better results. In the present studies the iron supplementation as foliar and cocoon character such as larval weight increased to 32 gms as compared to control which was 30 gms. ERR% increase to 98.60% in comparison to control which was 80.80% in control, cocoon weight recorded was 1.43 gms in comparison to control as 1.05gms. Shell weight of single cocoon was 1714 gms in comparison to control as 1455 gms. The above authors have not indicated the proper number of doses which was observed in the present studies. Supplementation upto thrice dose gave better performance while supplementation upto twice dose gave better ERR%

Viswanath and Krishnamurthy[5], Lokanath[6], also made the similar observation. Observations of Thangevelu and Bania[7] and Bose et al[8] also support the present observations. The other interesting observation made in present studies is that the supplementation of iron thrice a day gave better performance.

Conclusion

Supplementation of iron chloride by spraying method on mulberry leaves resulted in better economic characters of cocoons. Supplementation of iron by dusting method showed poorer results. In the present study, the worms who fed on mulberry leaves supplemented by iron were not suitable for grainges because although the emerged moths gave higher number of eggs, but after 12 hours those eggs became black and not able to hatch.

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Table-1

S.N.	Parameters	Control batch	Once supple mentation of Iron with Mulberry leaves	Twice supple mentation of Iron with mulberry leaves	Thrice supple mentation of Iron mulberry leaves
1	Larval weight of 10 mature worms in gms.	30	32	32	32
2	ERR%	80.8%	98.59%	98.6%	97%
3	Single cocoon weight in gms.	1.05 ±0.122	1.341 ±0.178	1.374 ±0.209 *<.05	1.430 ±0.105 *<.001
4	Shell weight of single cocoon in gms.	0.1456 ±0.3500	0.1637 ±0.3500	0.1671 ±0.3800 -<.05	0.1714 ±0.4720 *<.05

* - significant at this level.