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Occurrence of the natural enemies of mealybugs in a small coffee farm

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Abstract
Planococcus citri and *P. lilacinus* are major sucking pests of coffee causes considerable crop loss. Pests were naturally suppressed by the presence of indigenous and exotic natural enemies in the ecosystem. The occurrence of natural enemies was surveyed in different blocks of RCRS farm and *Spalgis epius, Pullus* sp. and *Leptomastix dactylopii* were found abundant. Lack of pesticide application favours the establishment of natural enemies.

Keywords: Biological control, Coffee pest, Parasitoids, Predators, Sucking insects.

1. Introduction
Mealy bugs are a major pest of coffee causing considerable crop loss. *Planococcus citri* Risso (Hemiptera:Pseudococcidae) (Fig1) and *Planococcus lilacinus* (Cockrell) (Fig 2) are the predominant species found in coffee [1]. Many species of mealybugs attack coffee, the most common ones being *Planococcus citri* (Risso) and *Planococcus lilacinus* (Cockerell) [2].

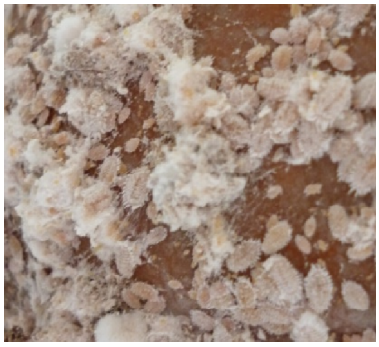

Fig 1: *Planococcus citri*

Fig 2: *P.lilacinus*

2. Materials and Methods
Observations were conducted at RCRS farm to find out the occurrence of indigenous and exotic natural enemies of mealybug. Medium level of mealybug infestation also was observed at different areas of the farm. The Regional Coffee Research Station farm is divided into several blocks. Four one acre blocks were selected for sampling. Twenty five plants each per acre randomly were selected for observation. From each plant five mealybug infested nodes were collected and brought into the laboratory. Observations were recorded on the number of mealybugs present in each node along with natural enemies. Data is presented in Table1and graphically presented in figure 7.

3. Results and Discussion

From the survey conducted on natural enemies *Spalgis epius,* (Lepidoptera: Lycaenidae) (Fig3) was abundant in the plantation followed by *L.dactylopii*. The *Spalgis epius* known as the Ape butterfly(Fig 4) is a voracious predator of *Planococcus citri* and is considered as a potential bio control agent of all species of mealybugs [3] . It is a well known representative of carnivorous butterflies feeding on various species of Pseudococcids and Coccids [4]. The exotic parasitoid *Leptomastix dactylopii* (Hymenoptera: Encyrtidae) (Fig 6)which is regularly released in the farm as a part of biological control program at RCRS farm Chundale was found in 75% of mealybug infested nodes collected from different parts of the farm. The parasitoid was introduced into India in 1983 from West Indies for the biological control of citrus mealybug, *Planococcus citri* (Risso) [5].

Fig 3: *S.epius* infested twig

Fig 4: *S.epius* (Caterpillar and Pupa)

Fig 5: Coccon of *L.dactylopii*

Fig 6: *L.dactylopii*- Adult

Table 1: Natural enemies present in the Farm (Block wise)

Blocks	Mealybug Infestation per node (Mean)	Indigenous / exotic natural enemies per node(Mean)		
		Spalgis epius	***Pullus sp***	***L. dactylopii***
Block 1	11.76	3.52	2.76	1.6
Block 2	14.64	2.4	0.88	1.4
Block 3	12.76	2.2	1.32	2.4
Block 4	16.34	1.56	0.44	0.76

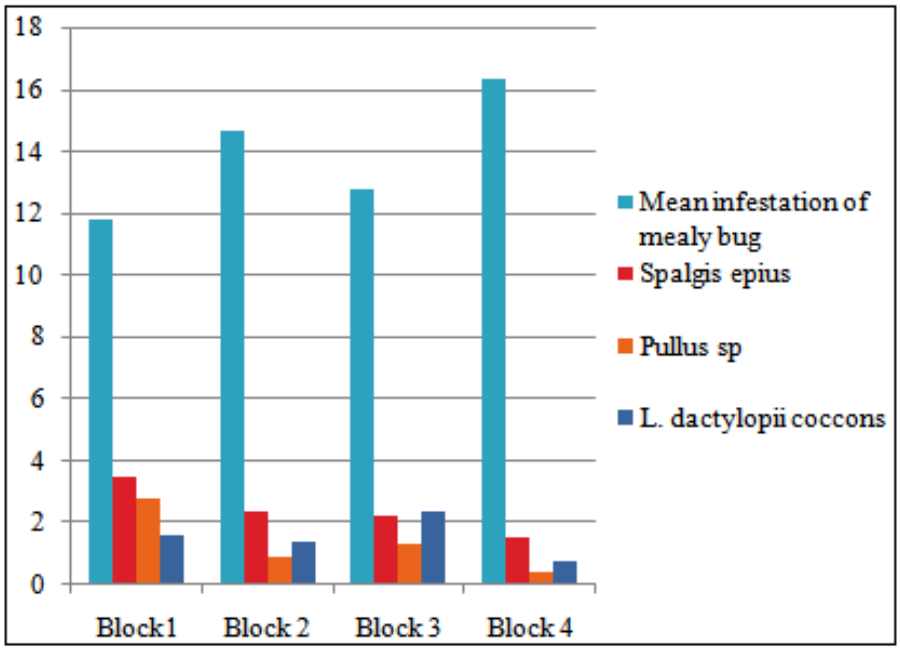

Fig 7: Graphical representation of mealybug infestation and natural enemies in coffee farm

4. Conclusion

From the study it is surmised that *Leptomastix dactylopii* is well established in the study area which controls the flare up of mealybug infestation in the farm. Abundance of natural enemies suppressed the mealybug infestation in the farm; as a result application of chemicals is largely reduced. The suppression of mealybugs in an eco friendly manner has resulted in preserving different natural enemies. The abundance of indigenous natural enemies viz. *Spalgis sp.* and *Pullus* sp has helped to maintain a low pest pressure in the station.

5. References

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