



## Nectar robbery in some South Indian Lamiaceae

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**Abstract:** Many insect species were visiting flowers, among those visitors very few were considered as pollinators. Some species of bees have learnt to steal nectar from flowers without pollinating them. To do this, the bee will make a hole in the flower near to the source of the nectar. If flowers have been robbed, they will usually have a neat circular or semi-circular hole near their base, close to where the nectar is produced. Once holes have been made by the robbers, other insects may also use them. For example, honeybees and ants have been seen using holes made by bumble bees. This paper mainly deals with nectar robbery in Lamiaceae. Here we observed nectar robbing strategy of some insect species 1. *Ameigilla* sp on *Orthosiphon aristatus*, here insect make hole in the corolla tube. 2. Nectar robbing method of Wasp on *Orthosiphon thymiflorus*, 3. Ant, *Oecophylla alba* on *Leucas aspera*. 4. Wasp on *Oscimum filamentosum*. 5. *Trigona* sp robbing on *Orthosiphon thymiflorus*.

**Keywords:** Nectar, Lamiaceae, Insect Sp.

### Introduction

Floral architecture normally prevents nectar robbing activity of the insects. But some organisms learnt to enter flower by damaging floral construction (biting and piercing). Flower offers nectar and pollen for pollinating insects but, some animals take food without pollinating them. A sustained interaction between such animals and flowers presumably leads to floral adaptations such as long, narrow nectar channels or other barriers to non pollinators (Faegri and Van der Pijil 1976, Opler 1981). Three species of bees have been known for nectar robbery (Roubik 1970a). One of these genera *Trigona* (Apidae famiy) visits wide range of flowers and well known for stealing nectar. Interactions between robbing *Trigona* and pollinating humming bird well quantified by McDade and Kinsman (1980).

### Materials and Methods

Field observations were made in the period of 2011-2013 at Wayand, Munnar and Kudajadri hills of Karnataka. The plants species were selected from Lamiaceae for studies. The members of family Lamiaceae has normally starts flowering at the end of June and peak flowering observed August to March.

### Insect behavior:

Insect behavior were recorded observed directly from the field and recorded the animal which steal nectar from the plant and mode of nectar robbing. Insects were identified by the animal experts of ZSI Calicut.

### Result

The mode of nectar robbery varies among both insects and plant species. In the *O. aristatus* insect make hole in the corolla tube and rob nectar. While looking for other plant species like *L. aspera* ant steal nectar from calyx tube. Details of nectar robbery recorded on the table.

Plant species	Peak flowering	Flower part	Insects	Locality
<i>Orthosiphon aristatus</i>	September-December	Corolla tube	<i>Ameigilla</i> sp	Munnar
<i>Orthosiphon thymifloras</i>	October-May	Corolla tube	<i>Vespa</i> sp	Wayanad
<i>Oscimum filamentosum</i>	May-June	Calyx	<i>Vespa</i> sp1 &2	Chinnar
<i>Leucas aspera</i>	June-February	Calyx	<i>Oecophylla alba</i>	University campus
<i>Orthosiphon thymifloras</i>	October-May	Corolla tube	<i>Trigona</i> sp	Wayanad

### Nectar robbing species:

The behavior of nectar robbing insects resulted some spot and hole in the either calyx tube or corolla. Once hole have been produced by robbers other insects like secondary robbers use them.

The attitude of the insects towards the different flower is different. Because here solitary bee *Ameigilla* sp robbing nectar from *O. aristatus*, the same solitary recorded as the potential pollinators on *L. chinensis* reported by Prasad Erancheri *et al.*, 2013.

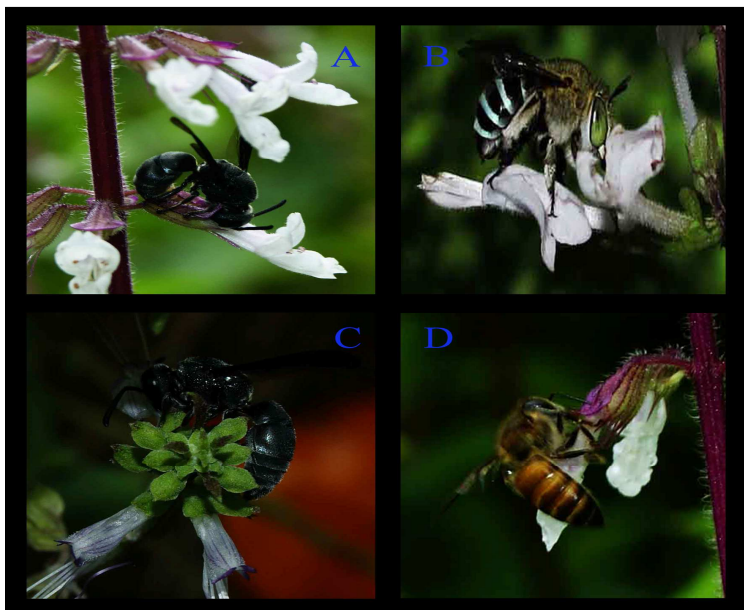
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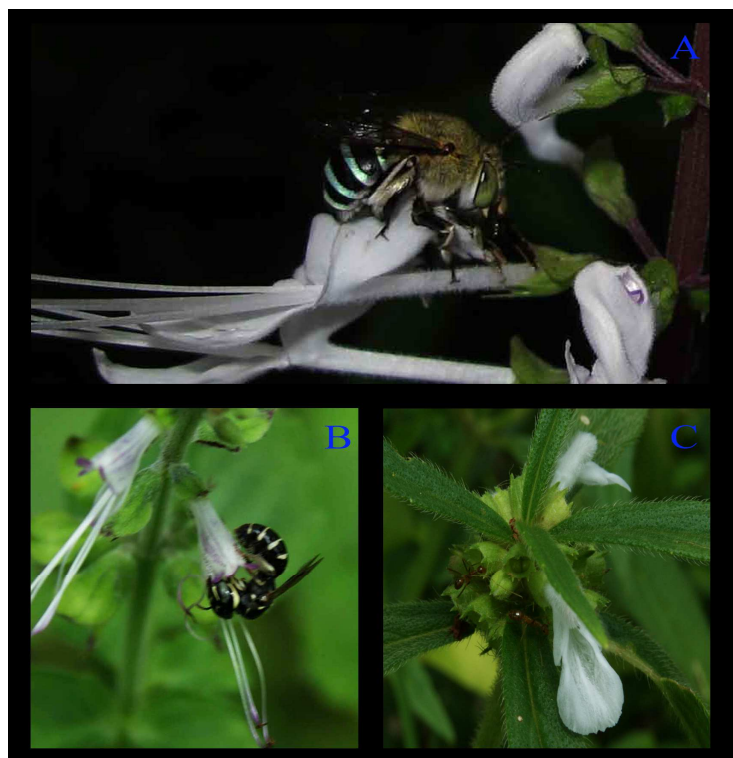
**Plate.1:** Nectar robbery in Lamiaceae.

A-Nectar robbing by *Vespa* Sp. on *Orthosiphon thymifloras*

B-*Ameigilla* on *O. aristatus*

C-*Vespa* on *Ocimum filamentosum*

D-*Trigona* on *O. thymifloras*



**Plate.2:** A-*Ameigilla* Sp. on *O. aristatus*

B-*Vespa* Sp. on *Ocimum filamentosum*

C-*Oecophylla alba* on *Leucas aspera*

## Discussion

The nectar robbing insects has direct role in the damaging the flower parts of a plant may reduce the seed production. Robbery also reduces the amount of nectar in flowers which can make the flowers less attractive to true pollinators, which in turn may reduce pollination of those flowers. But the holes made by robbery can encourage other insects to feed from flowers which would otherwise be inaccessible, encouraging a greater diversity of insects. Nectar is the major attractants of the flower normally the nectar glands are located very deep in the corolla tube. The insects were attracted by these nectarines but it available after covering anther lobe and style. So it is like hurdles to climb before reaching the target. Once the insects learn to steal nectar always try the same.

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