



***Bougainvillea* A Common Nesting Leaf Resource for Leafcutter *Megachile* Bee in Jodhpur, Rajasthan**

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ABSTRACT

This paper describes about the studies done on common nesting leaf resources of Leaf-cutter Megachile bees at 26.2810° N, 73.0473° E, Jodhpur, Rajasthan. These bees collect suitable leaves and construct their nests within a limited foraging range from plants. These bees usually cut disc shaped pieces of leaves of ornamental plants viz Bougainvillea and Rose plants to build their nests which were planted for roof-gardening. Each female constructs her nest inside hollow tunnel like spaces where she constructs a linear sequence of brood cells covered with mandible cut leaves that protect her descendants from harmful parasites and stored food provisions from desiccation. Observations revealed that Bougainvillea is a common preferred nesting resource for leaf cutter Megachile bee as compared to well-known rose. The Soft, supple and larger size leaves of Bougainvillea might be responsible for its favour over harsh, turgid and smaller size rose leaves.

Keyword: *Megachile, Bougainvillea, Nesting, Rose leaves*

Received 25 .07.2022

Revised 02.08.2022

Accepted 28.08.2022

INTRODUCTION

Bougainvillea is a woody, ever green, shrubby, vine native to the tropics & subtropics. The genus *Bougainvillea* belongs to the Nyctinaginacea family, having a spreading, spherical plant habit and may grow up to 20 feet tall and wide. *Bougainvillea* is a common perennial plant grows in arid areas of Jodhpur. Although this plant has colourful foliage, but mid to deep green leaves are preferred by *Megachile* for nest substrates. The leaves were cut in perfectly symmetrical semi-circular pattern from the margin with the help of sharp powerful mandibles.

MATERIAL AND METHOD

A leafcutter bee infestation was observed on ornamental plants rose and *Bougainvillea*, which are planted for roof gardening at Ummaid heritage garden, Ratanada, Jodhpur (26.2810° N, 73.0473° E). *Bougainvillea* is 20 to 30 feet tall plant and flourishes in full sunlight and spread to 10 feet wide.

Observation revealed that one to three semicircular cutting of diameter of 1.2 – 3.5 cm are present on a single leaf of *Bougainvillea*. The adult female leaf cutter bee cut the leaves in a semi-circular pattern by their sharp mandibles. Although there was no major physiological damage is caused to the plants due to these bees. *Megachile* bees carry the pieces of *Bougainvillea* leaves to their nest and line each cell with leaf and store a mixture of nectar and pollen for their offspring. Leaf cutter bee is considered as a major pest of rose [4, 1]. Rose and *Bougainvillea* both were maintained roof gardening at Ummaid heritage garden, Ratanada, Jodhpur

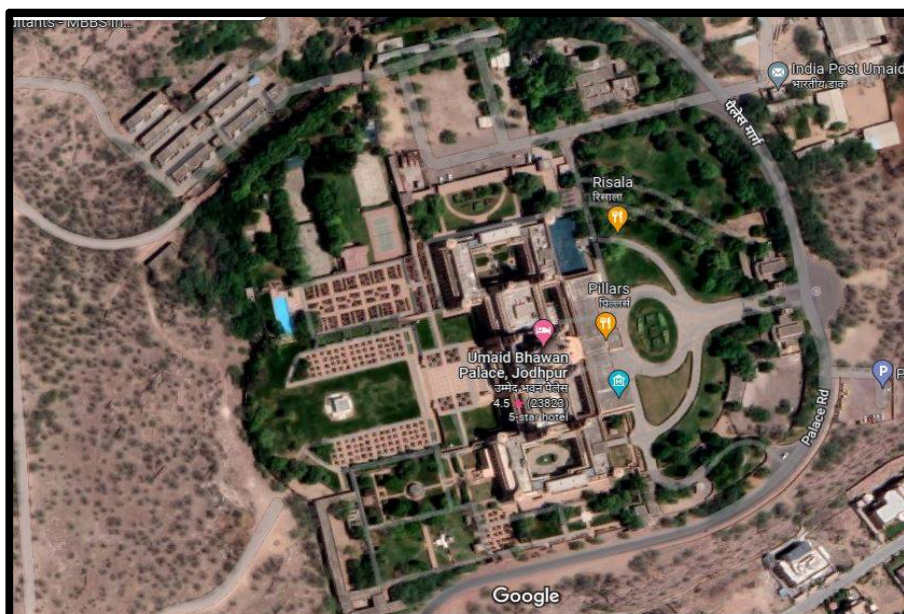


Figure 1. Roof Gardening in Ummaid Heritage Garden, Ratanada, Jodhpur

RESULT AND DISCUSSION

The leaves of the plants were sliced in semi-circular pattern from the border of the leaf keeping the mid rib intact. The adult female leafcutter bee uses their large, scissors like mandibles to cut the leaves and sometime flower petals in a typical semi-circular pattern greatly reducing the aesthetic value of the ornamental plant. A single leaf with a diameter of 1.5-2.8 cm. produced a maximum three such cuttings. According to Kumar [3]. Although consuming the cut pieces of leaves, leafcutter bees transport them back to their nest and fill each leaf lined cell with a mixture of pollen and nectar for their progeny.

Megachile bees usually cut disc shaped pieces of leaves of ornamental plants viz *Bougainvillea* and Rose plants to build their nests which were planted for roof-gardening. Each female constructs her nest inside a hollow tunnel like spaces where she constructs a linear sequence of brood cells encased with mandible cut leaves that protect her descendants from harmful parasites and stored food provisions from desiccation.

As per literature, a major pest of rose is leafcutter bee [4, 1]. However, in our observations when rose and *Bougainvillea* both were kept in the same place for gardening, the serious incidence of this bee mainly noted from *Bougainvillea*, where leaves of rose were less damaged. It was found that *Bougainvillea* leaves are common preferred nesting resource by leaf cutter *Megachile* bee as compared to well-known rose plant. The Soft, supple and larger size leaves of *Bougainvillea* might be responsible for its favour over harsh, turgid and smaller size rose leaves. Aside from these factors, leaf surface chemistry may be a reason for its selectivity as Eigenbrode et al., [2] documented that leaf cutter bees produce more cuts on leaves of *Cerciscanadenesis* (Fabaceae) with crystalline adaxial surface wax than on glabrous leaves.



Figure 2.A leaf cutter bee infestation was seen on ornamental plants

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CITATION OF THIS ARTICLE

P Sharma, A Rajpurohit, Imran, H Pathan, k Kumar, P Choudhary, D Patel. *Bougainvillea* A Common Nesting Leaf Resource for Leafcutter *Megachile* Bee in Jodhpur, Rajasthan, *Bull. Env. Pharmacol. Life Sci.*, Vol 11 [10] September 2022: 179-181.