

Sponge gourd: A novel plant for bee paradise

Sponge gourd (*Luffa cylindrica* (Linn.)) is a popular cucurbitaceous vegetable of India. Being a cross-pollinated and entomophilous crop, it attracts a large number of arthropod fauna throughout its crop growth, especially during its long flowering phase. Insects from 8 orders (Coleoptera, Diptera, Hymenoptera, Hemiptera, Neuroptera, Lepidoptera, Odonata and Orthoptera) comprising parasitoids, predators, pollinators and pests are attracted by its bright yellow coloured flowers. All four honey bee species (*Apis cerana indica*, *A. dorsata*, *A. florea* and *A. mellifera*) were found to visit its flowers and constituted 50 to 60% of total pollinators. Apart from honey bees, other pollinators like carpenter bee, stingless bee, leaf cutter bee, syrphid fly, moths, butterflies, skipper, fruit fly, etc. were also recorded as visitors to its flowers. During the summer season when a very few crops were available in the region; sponge gourd is one of the flowering plants that provides ample amount pollens and nectars to the pollinators. So, for apiculture and meliponiculture, this popular short duration cucurbitaceous vegetable could be a better option for rearing of bees particularly during the lean period apart from its nutritious fruits as vegetables.

BEE paradise or bee heaven is an ecologically sound, chemical (including pesticides) free place where bees mutually survive and grow uninterruptedly with the selected flowering plants. Bees broadly refer to the hymenopteran pollinators covering honey bees, stingless bee, carpenter bees, bumble bees, etc. Several flowering plants both wild and cultivated are known to be attractive to bees.

Luffa cylindrica a member of the cucurbitaceous family, commonly known as sponge gourd or vegetable sponge, is grown throughout the India, but more widely in the Indo-Gangetic plains of India. It is a popular summer

vegetable in northern, eastern and southern parts of India. India ranks first in sponge gourd production in the world. Being a cross-pollinated and entomophilous crop, this cucurbitaceous vegetable was found to attract a wide range of arthropod fauna throughout its crop growth, more especially during its long flowering phase. Apart from honey bees, other pollinators like carpenter bee (*Xylocopa* sp.), stingless bee (*Melipona* sp.), leaf cutter bee (*Megachile* sp.), syrphid fly (*Ersitalis* sp, *Episyrphus* sp.), moths (*Spoladea recurvalis*, *Cnaphalocrocis medinalis*, *Diaphania indica*), butterflies (*Danaus chrysippus*, *Pieris brassicae*), skipper (*Pelopidas mathias*), fruit fly (*Zeugodacus*



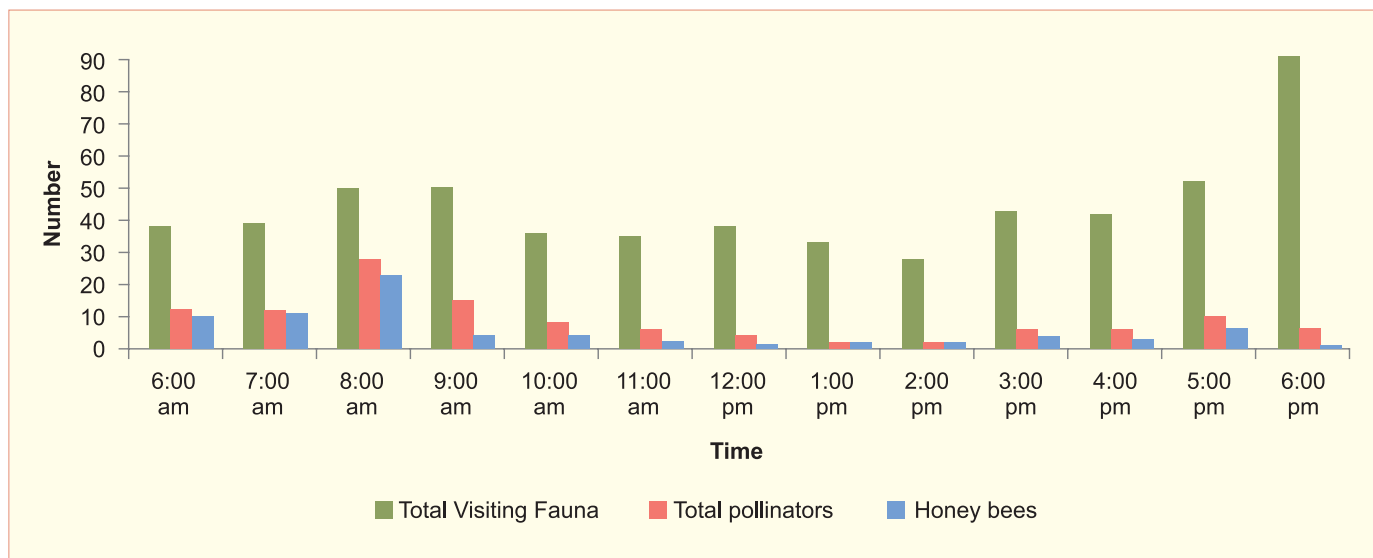
Sponge gourd flower visited by rice skipper



Sponge gourd flower visited by *Apis dorsata*



Carpenter bee on sponge gourd flower



Diurnal activity of different visiting insect fauna, pollinators and honey bees in summer sponge gourd.

cucurbitae) etc. were also recorded as visitors to its flowers. Its charismatic, big, bright yellow coloured flowers provide an enough highly visible landing platform for a range of pollinators.

Insects from 8 orders (Coleoptera, Diptera, Hymenoptera, Hemiptera, Neuroptera, Lepidoptera, Odonata and Orthoptera) comprising parasitoids, predators, pollinators and pests are being attracted by its flowers. In summer sponge gourd (February sown) crops, honeybees were the main pollinators constituting 50 to 60% of total pollinators in sponge gourds. All the four honeybee species, viz. *Apis cerana indica*, *A. dorsata*, *A. florea* and *A. mellifera* available in India were found to visit the flowers of sponge gourd grown in the experimental farm of ICAR-Indian Institute of Vegetable Research, Varanasi during summer season. Differential time of visitation amongst these honey bees was also observed and this probably could minimize the interspecies competition between them. The dominant honey bee species was little bee (*A. florea*) with 39% of total honey bee share.

Interestingly, during the summer season when the atmospheric temperature of the region reached up to 45°C a very few crops were available that could supply pollens

and nectars to the honey bees in the region. Sponge gourd is one of the few such flowering plants that provide ample amount of pollens and nectars to these honey bees during this lean period. During the summer season, its flowers open early in the morning (5 to 6 am) and closed only after 3.30 to 4 pm coinciding with the foraging activity of honey bees. So, for apiculture and meliponiculture, growing of this popular short duration cucurbitaceous vegetable could be a better option for rearing of bees particularly during lean period apart from its nutritious fruits as vegetables. The main advantage of this popular vegetable is that it is easy to grow without much care and gives profuse flowering for around 80-100 days during summer months.

For further interaction, please write to:

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