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Research Article

HONEYBEE VISITS MULI BAMBOO, *MELOCANNA BACCIFERA* (ROXB.) KURZ (BAMBUSOIDEAE: POACEAE)

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ABSTRACT
The present investigation is concerned with some important aspects of honeybee (*Apis dorsata* Fabricius) visits Muli bamboo, *Melocanna baccifera* about which information was scanty and meagre. Hymenopteran members were playing an important role in pollination especially in bamboos. Further studies to be carried out on the role of insects in the pollination biology of *Melocanna baccifera*.

Keywords: *Melocanna Baccifera, Poaceae, Hymenoptera*

INTRODUCTION
Melocanna baccifera (Roxb.) Kurz, is one of the most valuable Indian bamboos, growing to about 10-20 m height. This genus is native to India, Bangladesh, Myanmar (Burma) and Nepal (Watson and Dallowitz, 1992; Ohrnberger, 1999).

Past record of the flowering periodicity of the species is expected to be 48 years interval (Shibata, 2009); they flower once in their lifetime and die (Janzen, 1976).

The floral morphology consists of the large compound panicle, spikelets were acuminate fasciculate and one sided.

There are two types of flowers observed, one in fertile stage and sterile stage; fertile flowers were at the lower nodes and sterile were at the upper nodes of the culms; several sterile and fertile flowers arising from the same nodes and were hanging down from the nodes.

Very little studies have been conducted on the pollination biology of bamboos as the major subject by Jackson (1981), Koshy *et al.*, (2001) and Huang *et al.*, (2002).

There have been insufficient studies in sexual reproduction of bamboos especially in the field of pollination biology. The present investigation reports the observations on honeybee frequently visiting the flowers of *Melocanna baccifera*.

MATERIALS AND METHODS
Field studies were conducted during January to May, 2012. The present study was proposed for the regular observations of honeybee visiting on the flowers of *Melocanna baccifera*. Flowering phenology (flower initiation, development, anthesis, anther dehiscence etc.) and floral morphology was observed in the field. Time was recorded when new flowers opened. Field photographs were taken by using Sony Cybershot HX7V.

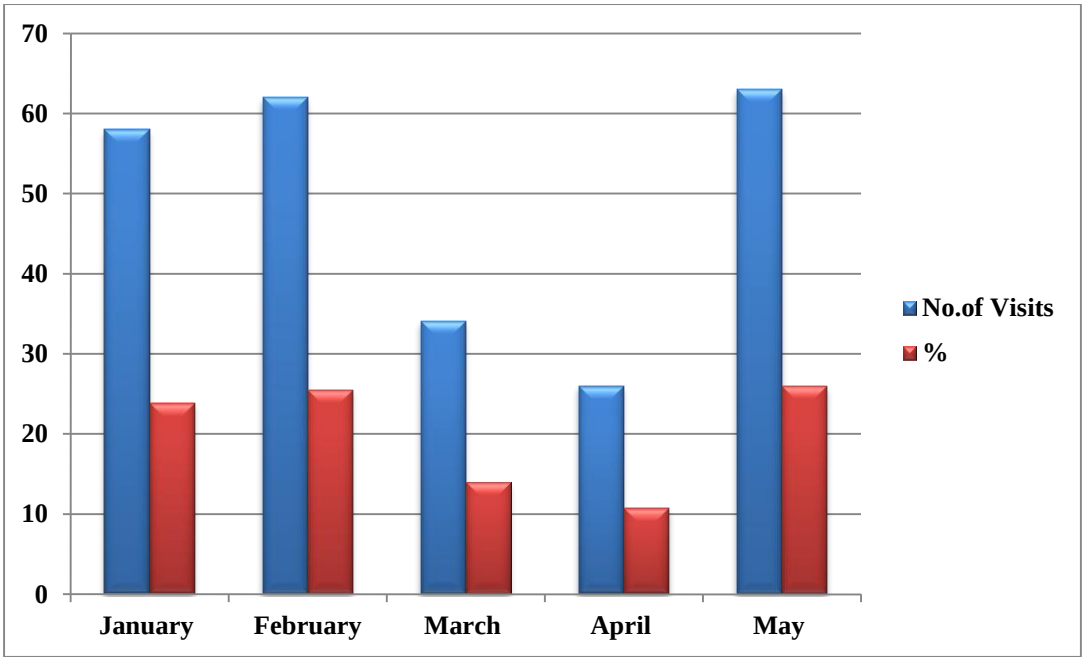
RESULTS AND DISCUSSION
Flower opening in *Melocanna baccifera* began around 6.00 am and completed by 3.30 pm. *Apis dorsata* Fabricius (order: Hymenoptera) (Figures 3-10) was the only visitor observed during flowering seasons. Occasional visits were observed in the morning.

Bee was not visited the female flowers or stigma. While foraging, honeybee landed on anthers and scrabble over the anthers to obtain pollen grains. Bee visits were found increased during May whereas decreased in April (Table 1; Graph 1).

Figure 1: *Melocanna baccifera* Habit; 2) Female flower; 3-10) Foraging behaviour of Honeybee (*Apis dorsata*) on the male flowers of *Melocanna baccifera*

Table 1: Showing No. of visits and percentage of floral visitor (*Apis dorsata*) of *Melocanna baccifera* during January to May 2012

No.	Month	No. of visits	%
1	January	58	23.86
2	February	62	25.51
3	March	34	13.99
4	April	26	10.69
5	May	63	25.92
Total number of visits		243	



Graph 1: Showing No.of visits and percentage of floral visitor (*Apis dorsata*) of *Melocanna baccifera* during January to May 2012

Several studies have been conducted on the pollination biology of bamboos. Bodekar (1930) recorded bees hovering round the flowers of *Bambusa polymorpha*. Insects were visited on the flowers of *Ochlandra travancorica* on sunny days (Venkatesh, 1984). Large numbers of small bees were visited on the flowers of *Gigantochloa albociliata* (Jackson, 1981).

The insects *Apis mellifera* and *Allodape marginata* were visited on the male flowers of *Dendrocalamus strictus* (Nadgauda *et al.*, 1993). Koshy *et al.*, (2001) observed that honeybees predominantly of order Hymenoptera and belong to genera *Apis*, *Halictus*, *Trigona*, *Braunsapis* and *Ceratina* were visited on the woody bamboos. Huang *et al.*, (2002) recorded that *Apis cerana* was the frequent visitor in *Phyllostachys nidularia*.

The study indicated that Hymenopterans were playing vital role in pollen transformation. The gregarious flowering of *Melocanna baccifera* is a device to ensure cross pollination (Whitmore, 1975; Jackson, 1978).

This is the first documentation of honeybee visits in *Melocanna baccifera*. There is in need of further studies on the role of honeybee regarding pollination biology of this species.

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REFERENCES

Bodekar FWT (1930). A few observations on the flowering of Kyathaungwa *(Bambusa polymorpha* Munro). *Indian Forester* **56** 404 - 405.

Huang SQ, Yang CF, Lu B and Takahashi Y (2002). Honey bee assisted wind pollination in bamboo Phyllostachys nidularia (Bambusoideae: Poaceae)? *Botanical Journal of Linnean Society* **138** 1-7.

Jackson JK (1978). Speculations on the gregarious flowering of bamboos. *Commonwealth Forestry Review* **57** 149- 150.

Jackson JK (1981). Insect pollination of bamboos. *Natural History Bulletin of the Siam Society* **29** 163–166.

Janzen DH (1976). Why bamboos wait so long to flower. *Annual Review of Ecology and Systematics* **7** 347–391.

Koshy KC, Harikumar D and Narendran TC (2001). Insect visits to some bamboos of Western Ghats, India. *Current Science* **81**(7) 833-838.

Nadgauda RS, John CK and Mascarenhas AF (1993). Floral biology and breeding behaviour in the bamboo *Dendrocalamus strictus* Nees. *Tree Physiology* **13** 401–408.

Ohrnberger D (1999). *The Bamboos of the World: Annotated Nomenclature and Literature of the Species and the Higher and Lower Taxa* (Elsevier, Amsterdam).

Shibata S (2009). Consideration of the flowering periodicity of *Melocanna baccifera* through past records and recent flowering with a 48-year interval. *VIII World Bamboo Congress Proceedings* **5** 90-99.

Venkatesh CS (1984). Dichogamy and breeding system in a tropical bamboo *Ochlandra travancorica*. *Biotropica* **16** 309–312.

Watson L and Dallowitz MJ (1992). *The Grass Genera of the World* (Wallingford, UK: CABI International) 591–592.

Whitmore TC (1975). *Tropical Rain Forests of the Far East* (Oxford, Clarendon).