

**Abundance of Different Insect Pollinators Visiting Cucumber (*Cucumis sativa* L.) in Rabi Season\***

Utilization of pollinators especially honeybees is considered as one of the cheapest ecofriendly approach in maximizing, the yield of cross pollinated crops (Free, 1970). Many investigations have consistently confirmed that yield levels can be increased to an extent of 50 to 60 per cent in fruits and plantation crops, 45 to 50 per cent in sunflower, sesamum and niger and 100 to 150 per cent in cucurbitaceous crops through good management of pollinators (Melnichenko and Khalifman, 1960). Insect pollination of crops is an essential crop management practice and should be utilized skillfully by harnessing the activity of domestic honey bees, wild bees and other pollinators including solitary bees. Achievement of desired pollination lies in the planned and efficient use of honey bees to increase the yield as well as improving qualitative and quantitative parameters of the crop yield. Flowering phenology of cucurbits ensures the cross-pollination for better fruit set and yield. The flowers of cucurbits are usually monoecious they produce male and female flowers separately on the same plant at different internodes. The flowering ratio of male to female is 15: 1. The pistillate and the staminate flowers open on the same day. But the male flowers borne first, a fortnight earlier than the female flower. Both flowers arise singly from different internodes. Insects are required for pollen transfer because of the large sized pollen grain, their stickiness and the way they are released from the anthers. The study was made during rabi, 2005-06 in the unsprayed plots of the crop raised for studying pollinator fauna. The observations were made at two hourly interval from 0800 to 1800 h on number of bees visiting in each square meter area from five spots for five minutes at weekly interval. The observations were initiated at 10 per cent flowering and continued at weekly intervals for five weeks. Then the data was averaged time wise and species wise to draw the conclusion about

dominant group and peak foraging time. On an average *Apis dorsata* foraging activity was observed from 0800 to 1800 h of the day, with highest foraging activity 6.72 bees/m<sup>2</sup>/5 min, at 1200 h which was followed by a next peak at 1000 h with 4.68 bees/m<sup>2</sup>/5 min. However, lowest bee activity was observed at 0800 and 1800 h of the day with 1.56 and 2.07 bees/m<sup>2</sup>/5 min, respectively. *A. cerana* foraging activity was noticed from 0800 to 1800 h of the day, with the mean maximum foraging activity at 1000 h, with 11.38 bees/m<sup>2</sup>/5 min which was followed by a next peak at 1200 h with 8.02 bees/m<sup>2</sup>/5 min. However, lowest bee foraging activity on cucumber flowers was observed at 1800 h of the day with average of 2.80 bees/m<sup>2</sup>/5 min. *A. florea* foraging activity was observed from 0800 to 1800 h of the day, with significantly highest mean foraging bee activity at 1200 h with 15.93 bees/m<sup>2</sup>/5 min, which was followed by 12.26 bees/m<sup>2</sup>/5 min at 1000. However, significantly lowest bee foraging activity on cucumber flowers was observed at 1800 h of the day with 1.97 bees/m<sup>2</sup>/5 min. When foraging activity of other pollinators was compared between different hours of the day, it started at 0800 h with an average of 4.52 pollinators/m<sup>2</sup>/5 min. Peak activity was noticed during 1000 h with 6.16 pollinators/m<sup>2</sup>/5 min. The foraging activity of other pollinators was uniform from 1200 to 1800 h with an average of 3.39 to 5.61 pollinators/m<sup>2</sup>/5 min. The present finding are in confirmative with of Jadhav (1981) who reported that *A. dorsata* was active between 1100 to 1200 h of the day. Kumar *et al.* (1994) reported that *A. dorsata* activity was peak at 0900 to 1100 h. The present findings were also similar with those of Guruprasad (2001) on Niger, Kalmath (2002) on Onion, Mane (2003) on Coriander, Dinesh (2003) on Cucumber. Mohan Rao and Suryanarayana (1990) also reported the peak activity of *A. cerana* at 0900 h of the day in Watermelon, Panchabhavi and Jai Rao (1978).

Table. Comparative foraging activity of different pollinators on cucumber during flowering period

Time hours	<i>A. dorsata</i>	<i>A. cerana</i>	<i>A. florea</i>	Others	Total	Mean
0800	1.56d	4.94d	3.67e	4.52b	14.48	3.62e
1000	4.68b	11.38a	12.26b	6.16a	34.48	8.62b
1200	6.72a	8.02b	15.93a	5.61ab	36.28	9.07a
1400	3.15c	2.88e	6.00d	4.31b	16.34	4.08d
1600	2.41 cd	6.19c	8.33c	3.51b	20.44	5.11c
1800	2.07d	2.80e	1.97f	3.39b	10.23	2.55f
Total	20.59	36.21	48.16	27.5	132.25	
Mean	3.43d	6.03b	8.03a	4.58c		

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Department of Agricultural Entomology  
University of Agricultural Sciences,  
Dharwad - 580 005, India.

M. C. PATEEL  
H. N. SATTAGI

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