

2-5. Effect of Light Sources on Mating Behavior of *Bombus terrestris* L.

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Mating success depends on a variety of factors such as age, light conditions and time of the day. Higher light intensity has positive assortative effect on mating. Copulation frequency of *Bombus terrestris* (Hymenoptera: Apidae) was examined under different light sources in control conditions. Red, blue, green, yellow and white colored lights were used for preliminary experiment, to observe the activity of male in flight cage under control conditions. It was observed that *B. terrestris* male flying activity was enhanced under white and blue light conditions. Five locally available white light sources with different intensities (11-900 lm/ft.sq.) comparing with sunlight were selected to observe the flight activity of males and queens for mating in minimum time period. Seven to eight days old queens with 9-10 days old males were used which were kept in dark room for 12 h before mating. Experiments were performed under 25°C temperature and 60% humidity. Results suggest that 91.39% queens succeeded to mate ($F= 5.60$ $df= 4, 59$ $P< 0.01$) under light intensity of 867lm/ft.sq. (UV 300-600nm). While 91.31% queens successfully completed mating under sunlight as standard with an average temperature 30.38°C and 52% humidity.