

Conditions Suitable for Artificial Hibernation of the Bumblebee Queen, *Bombus terrestris*

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An artificial hibernation is essential for year-round rearing of the bumblebee, *Bombus terrestris* that undergoes one generation per year. It is known that keeping the queens in low temperature for two or three months is effective to terminate their diapause and develop the colony. We describe here the chilling temperature, chilling duration and period of the *B. terrestris* queen suitable for artificial hibernation. In temperature, 2.5°C group was best in survival rates after cold treatment and colony development among the tested temperatures, 0°C, 2.5°C, 5°C, 7.5°C and 12°C. In the initiation period of cold treatment, 10-12 days old queen after emergence showed the good result in survival rates among the regimes of 10-, 12-, 14- and 16-days after emergence. Also, in duration of cold treatment of the queens, the survivability and colony development of the queen were best when they were preserved for 8 to 12 weeks. In conclusion, the chilling of 10-12 days old queen at 2.5°C for 8 to 12 weeks was the favorable condition for artificial hibernation of the bumblebee queen, *B. terrestris*