

Weight Loss, Diapause Survival and Colony Development of Hibernated Bumblebee Queens (*Bombus ignitus*) under Controlled Conditions

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Diapause survival and colony development of *B. ignitus* queens which were artificially hibernated under controlled condition (preserved at 4°C for 1, 3 and 4 months) were investigated. The results show that weight at the start of artificial hibernation determines to a large extent the diapause survival. Queens weight below 700mg mostly died in 1 month and below 800mg in 3 months at the start of artificial hibernation. Queens weight between 800mg and 1100mg survived upto 50% in 4 months. However individual weight prior to hibernation did not affect the rate of oviposition. The weight loss during hibernation increased in proportion to time of exposure. Weight of *B. ignitus* prior to hibernation varied from 600mg to 1200mg, but after hibernation from 650mg to 900mg. Hibernation period at 4°C did not affect the rate of oviposition and colony development as well as colony size but there was a significant difference between hibernation period and preoviposition period(one-way ANOVA, F-value: 8.2097, P<0.01).