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Effects of Low-Temperatures and Marking on Survival of the Adult Codling Moth *Cydia pomonella* (Lepidoptera; Tortricidae)

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Abstract

Synchronizing the laboratory rearing with the appropriate climatological conditions is one of the rear-release-recapture studies dilemmas. Regarding this issue, we evaluated the effect of low temperature on adult codling moths as well as marking on its survival in the laboratory. In order to keep adult codling moths in the appropriate condition before releasing, the effects of low temperature and individual marking were tested on 12–24 h old adults after rearing the codling moth on the artificial diet based on the Ivaldi-Sender formulation with a little modification. In the first experiment which was designed in Factorial format as 3^3 and in CRB base, Blocks included male, female and male-female and factors contained lethargic temperatures, marked and unmarked adults. Adults were kept 3 and 5 minutes in -20°C to make them motionless and lethargic and then marked individually with felt tip pens. Treatments were transferred to incubators in optimum condition (photoperiod of 16:8 h, L:D, 24°C and $65\pm 5\%$ R.H.) in the cylinders and fed by autoclaved water in soaked cotton. Survival rate evaluated daily for 13 days. In the second experiment, 12–24 h old adults were kept in 4°C during the whole adult life and fed with 10% sucrose. The survival rate evaluated with two days interval for 27 days. Data were analysed by GLM procedure, SAS. Significances of data were computed in alpha 0.05%. The results in the first experiment pointed that the differences between the Blocks were not significant, additionally the female had the lowest survival mean. Meanwhile differences in factors were significant. Hence, both of the low-temperatures duration significantly influences adult longevity as well as the marking. Differences between the sexes in the second experiment was obviously significant, moreover the females were more survivor than males.

Keywords: Codling moth, marking, moth rearing, survival rate