

## Effect of Temperatures on Growth and Development Time of *Aphis fabae* Scopoli (Homoptera: Aphididae): On Bean (*Phaseolus vulgaris* L.)

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**Abstract :** The aim of this study was to evaluate the biological parameters of *A. fabae* Scopoli (Hemiptera: Aphididae). Developmental, survival, and reproductive data were collected for *Aphis fabae* reared on detached bean leaves (*Phaseolus vulgaris* L.) 'pinto beans' at five temperature regimes (12, 16, 20, 24, and 28 °C), 65% relative humidity (RH), relative and a photoperiod of 16:8 (LD) h. The developmental times of immature stages ranged from 16, 65 days at 12°C to 5.70 days at 24°C, but a slight increase again at 28°C (6.62 days). At 24°C from this study presented the developmental threshold for *A. fabae* slightly to 24°C. The average longevity of mature females significantly decreased from 42.32 days at 12°C to 16.12 days at 28°C. The reproduction rate per female was 62.27 at 16°C and 12.72 at 28°C. The mean generation period of the population ranged from 29.24 at 12°C to 11.50 at 28°C. The highest intrinsic rate of increase ( $r_m = 0.41$ ) were recorded at 24°C, the lowest at 12°C ( $r_m = 0.15$ ). It was evident that temperatures over 28°C augmented the development time, accelerated the death ratio of the nymphal stages, Shrunken Adult longevity, and reduced fecundity. The optimal range of temperature for the population growth of *A. fabae* on the bean was 16°C-24°C, according to this study.

**Keywords :** developmental time, intrinsic rate, reproduction period, temperature dependence

**Conference Title :** ICE 2021 : International Conference on Entomology

**Conference Location :** Paris, France

**Conference Dates :** October 28-29, 2021