

## P045

### *Size of individuals and the duration of development in ants*

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Based on literature and own data altogether 43 ant species were compared by their development times at  $25 \pm 1$  °C. For the purpose of comparison the prepupal stage was combined with the pupal one because in Myrmeciinae, Ponerinae and Formicinae they both were normally enclosed within a cocoon. Immature development was 2 - 3 times longer in "primitive" ants *Dinoponera quadriceps*, *D. grandis*, *Myrmecia forficata*, *Tetraoponera anthracina*, *Cryptopone gilva* in comparison with species from Dolichoderinae, Formicinae and Myrmicinae.

Significant positive correlations were found between the development times of egg and larval stages ( $r = 0.33$ ,  $p = 0.03$ ,  $n = 39$ ), the egg and combined prepupal+pupal stages ( $r = 0.69$ ,  $p = 0.00011$ ,  $n = 22$ ), and the larval and combined prepupal+pupal ( $r = 0.59$ ,  $p < 0.0016$ ,  $n = 22$ ) stages. The development times of all stages were strongly correlated with individual sizes of workers. It means that the larger was the species the longer was the development.

We calculated the parameters of the linear regression of the development rate on temperature ( $R = a + bT$ ) and compared the values of the regression coefficient  $b$  for species of different sizes. The coefficient of linear regression of the development rate on temperature  $b$  (or the thermal sensitivity coefficient) determines how the development rate changes when temperature increases or decreases by 1 degree.

There was no correlation between the size of individual and the value the thermal sensitivity coefficient in general for all ant species, but negative correlations were found for Myrmicinae and Formicinae examined separately. It means that in these two subfamilies the temperature dependence of the development was slightly greater for small species with faster development than for large species with slower development. The temperature dependence of larval development demonstrated much more complicated relationships.