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| Title: | Evolution of increased adult longevity in <i>Drosophila melanogaster</i> populations selected for adaptation to larval crowding |
| Authors: | Shenoi, V.N. (/jspui/browse?type=author&value=Shenoi%2C+V.N.) Ali, S.Z. (/jspui/browse?type=author&value=Ali%2C+S.Z.) Prasad, N.G. (/jspui/browse?type=author&value=Prasad%2C+N.G.) |
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| Abstract: | In holometabolous animals such as <i>Drosophila melanogaster</i> , larval crowding can affect a wide range of larval and adult traits. Adults emerging from high larval density cultures have smaller body size and increased mean life span compared to flies emerging from low larval density cultures. Therefore, adaptation to larval crowding could potentially affect adult longevity as a correlated response. We addressed this issue by studying a set of large, outbred populations of <i>D. melanogaster</i> , experimentally evolved for adaptation to larval crowding for 83 generations. We assayed longevity of adult flies from both selected (MCUs) and control populations (MBs) after growing them at different larval densities. We found that MCUs have evolved increased mean longevity compared to MBs at all larval densities. The interaction between selection regime and larval density was not significant, indicating that the density dependence of mean longevity had not evolved in the MCU populations. The increase in longevity in MCUs can be partially attributed to their lower rates of ageing. It is also noteworthy that reaction norm of dry body weight, a trait probably under direct selection in our populations, has indeed evolved in MCU populations. To the best of our knowledge, this is the first report of the evolution of adult longevity as a correlated response of adaptation to larval crowding. |
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