

Abstract

Females' gain in reproduction, with increase in number of mating, is minimal. More mating also make females prone to mate-harm by males. Thus females should evolve to minimize their mating rate. But evolution of elevated mating rate is possible if females can gain benefits from these extra mating. We tested this hypothesis using *Drosophila melanogaster* populations selected for better survivorship against bacterial infection. In these populations, it has already been reported that mated females gain in terms of increased survivorship when infected compared to virgin females. I thus predicted that in these selected populations, since the females benefit from mating, females should evolve higher mating rate compared to the control population. As reported, I found that female flies from I (selected) populations survived better when challenged with bacteria than flies from S (sham control) populations. Overall females from IRS (reverse selected) populations had similar survivorship compared to the unhandled controls across all the blocks after 120 generations of reverse selection. The results suggest that I females have higher mating rate than the S in three out of four blocks as was predicted. IRS females had no fixed patterns for mating rate. Interestingly in my experiments I discovered that the 'benefit due to mating' gained by females in I populations is not substantially different from that of the control and reverse selected populations, contrary to our hypothesis.