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Title:	All's fair in Love and war: Evaluation of reproductive traits in population of Drosophila melanogaster evolved under differential levels of sexual selection
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Abstract:	<p>Darwin defined sexual selection as an advantage that certain individuals have over other individuals of the same sex and species, solely in terms of reproduction. Due to the difference in their reproductive investment, the two sexes are often in conflict with each other over reproductive optima. Males compete within themselves to get access to the females to mate. Females further impose a choice in mating with males. These two aspects of sexual selection lead to intra-sexual conflict and inter-sexual conflict between the two sexes. Such a conflict leads to the evolution of reproductive traits in both sexes, which defines their reproductive fitness. The central idea for my thesis is investigating sexual conflict between the two sexes and reproductive and secondary sexual traits which are likely to evolve as a result of this conflict. For the experiments carried out as part of this thesis, I have used laboratory populations of Drosophila melanogaster evolved under differential levels of sexual selection for over 250 generations. This differential sexual selection is achieved by altering the adult sex ratio to male-biased and female-biased. The male-biased (M) population has evolved under the 3:1 male: female ratio every generation, and the female-biased (F population) has evolved under the 1:3 male: female ratio. As the result of the differential selection pressure under altered sex ratios, the M population evolved under higher levels of sexual conflict in terms of male- male competition and female choice. In these M and F populations, I aimed to investigate the sexual conflict over mating between the two sexes and how that leads to differential mating success in males and mating resistance in females. Further, I examined the evolution of secondary sexual traits like wing morphology and wing interference pattern in the M and the F populations. Finally, I investigated the male-female interaction in the outcome of the post- copulatory sperm competition in these populations. The results from these studies have given a better understanding of how the conflict between the sexes plays out and how they evolve to maximise their own reproductive fitness. The findings of this thesis provide an insight into the evolution of reproductive traits in the populations that face differential levels of sexual selection.</p>
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