Plasticity in Aggressive Displays Contribute Significantly to the Cost of Reproduction in *Drosophila Melanogaster* Males

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Abstract—Males of several species has been shown to adaptively fine tune their ejaculate allocation under various intensities/risk of sperm competition- a form of plasticity in male reproductive behavior. The cost and benefit of these plastic responses is crucial to understand its fitness consequences and evolution of these traits. Plasticity in other components of reproductive behaviour (such as courtship, aggression) other than ejaculate allocation might also contribute to shape the fitness at the face of varying level of competition.Aggression is one of the important componentof male reproductive behaviour, potentially affecting both mating and fertilization success.However, in addition to its potential fitness advantage, aggression is also energetically costly. Therefore, a reasonable prediction is that males should be selected for evolving adaptive plasticity in their aggressive behaviour.In our present study we have used laboratory maintained population of *Drosophila melanogaster* to address the following questions (a) Does males' perception of risk of (sperm) competition lead to plasticity in their aggressive behaviour in a manner comparable to that observed in ejaculate allocation? (b) If it does, what cost or benefits does it incur on the males? Our report concludes that *D. melanogaster* males' tendency to show plasticity in their aggressiveness in response to the perceived risk of future competition, was not found to contribute to any variation in mating success but contributed significantly to the short term reproductive cost in the form of increased susceptibility to stressful conditions (desiccation and starvation).