Title:	Investigating the inheritance patterns of female body size and mating behaviour in Latrodectus hasselti, L. katipo and their hybrids
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Keywords:	Latrodectus hybrids
Issue Date:	May-2024
Publisher:	IISER Mohali
Abstract:	Sexual cannibalism is an obscure mating behaviour observed in many species exhibiting extreme sexual size dimorphism, notably among black widow spiders. This study focuses on Latrodectus hasselti, a species characterized by its sexually cannibalistic and aggres- sive nature and significantly larger females compared to its dwarf males. Contrastingly, its close sister species, Latrodectus katipo, displays reduced sexual size dimorphism and lacks cannibalistic and aggressive behaviours. The phenomenon of unidirectional hybridization between these two species provides a unique opportunity to investigate the genetic inheri- tance of traits such as sexual size dimorphism, sexual cannibalism, aggression, and mating behaviour. In our research, we utilized backcrosses of hybrids between these two species to explore the inheritance patterns of these specialised mating traits. Our findings indicate that the genes responsible for larger body size exhibit cross-sex inheritance. Moreover, both sexual cannibalism and aggression appear to be dominant X-linked traits, predominantly inherited from the L. hasselti genome. Our analysis also reveals a significant positive cor- relation between mating rate and the degree of sexual size dimorphism in the backcross progeny. These results contribute novel insights into the genetic mechanisms underlying sexual cannibalism and sexual size dimorphism and suggest sex-specific inheritance of ex- treme traits via the X chromosome.
Description:	under embargo period
URI:	http://hdl.handle.net/123456789/5729
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