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Title:	Genetics of Female Mate Preference in Nasonia
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Abstract:	<p>Diverging mate preferences promote incipient speciation in a diverse range of taxa. The young and sympatric sister species pair of the parasitoid wasp genus <i>Nasonia</i> - <i>N. giraulti</i> (NG) and <i>N. oneida</i> (NO) show asymmetric assortative mating and no evidence of any post-zygotic barrier. In particular, NO females reject NG males while NG females do not. This suggests that the evolution of mate discrimination could have initiated speciation in this species pair. The present study investigates the inheritance of female mate preference behaviour in hybrids of the species pair, with the ultimate aim of discovering the genes responsible for the same. This was achieved by (1) Conducting no-choice mating trials on parental, F1 and F1 backcross hybrid females, (2) Setting up recombinant inbred isofemale lines homozygous for NG male acceptance phenotype and (3) Conducting no-choice mating trials on females from each of the obtained isofemale lines. (1) NO females accept NG males in a significantly less percentage of trials (7%, n=65) than their conspecific males (88%, n=33) ($p < 0.01$, Fisher Exact Test). O/G[G] and G/O[O] F1 hybrids accept NG males in 85% (n=23) and 95% (n=32) of mating trials respectively showing no discrimination between NO and NG males, while the G/O[O] F1 backcross females show 0% (n=20) acceptance of NG males compared to 90% (n=14) acceptance of NO males. (2) A total of 91 isofemale lines were set up which were derived from 12 F2 hybrid males. (3) The progeny are expected to emerge during the last two weeks of April, after which they will be assessed for their mate preference. Since F1 hybrid females showed the NG acceptance phenotype in heterozygous condition, the phenotype is tractable in a genetic study. The reappearance of the NG male rejection phenotype in F2 hybrid females suggests the preference trait could be polygenic.</p>
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