

I ABSTRACT

Within the contemporary theory on the sexual selection there are two main competing hypotheses concerning the female indirect benefits arising from the mate choice. The 'Good genes' hypothesis assumes that the female tends to gain for her progeny some generally beneficial alleles through mating with an appropriate male. On the other hand the 'Complementary genes' hypothesis supposes that the mate choice is governed by the female effort to obtain for her offspring the most fitting parental haplotypes. This thesis aimed to provide evidence for discrimination between these two hypotheses in scarlet rosefinch. Three principal aspects of the sexual selection were concerned: (1) the reliability of male ornamentation as an indicator of individual's quality; (2) the associations between parental traits and offspring health indicators and (3) the effect of paternity on offspring heterozygosity and immune responsiveness in mixed-paternity broods. The results indicate that male ornamentation is a reliable signal of individual's health which may be used by females in their mate choice. The ornamentation does not reflect male's heterozygosity. Moreover, the social father's ornamental plumage hue and saturation are good predictors of nestlings' health and immune responsiveness. Nevertheless, there was no effect of extra-pair paternity either on the nestlings' health or swelling response to phytohemagglutinin. Neither the direct comparison of extra-pair young with their maternal half-sibs showed any difference in heterozygosity and immunoresponsiveness. Although these results are more consistent with the 'Good genes' hypothesis than with the 'Complementary genes' hypothesis, the data do not fully support any of them in all details.