THE EFFECT OF MOULT ON IMMUNITY OF PIED FLYCATCHER MALES DIFFERING IN MELANIN-BASED COLORATION

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On the contrary to carotene-based coloration, the melanin based coloration of birds is widely accepted as a low cost trait. However, this statement conflicts with the results of some recent studies which, in particular, showed the environmental component of variation of melanin coloration. The Pied Flycatcher, the species with exaggerated polymorphism of melanin-based background coloration, tends to combine the late phase of monocyclic reproduction with moulting. Experimental challenge of humoral immunity in males which did not moult during the chick-rearing period led to the same responses in birds of different colour types. However, males of different colour types combined chick rearing with moulting markedly differed in their antibody titres. As compared with non-moulted conspicuous males with rich melanin colouration, moulted ones of the same colour showed a lowered immune response. At the same time, the immune response was sharply reinforced in moulted males of intermediate and cryptic coloration in comparison with non-moulted males of the corresponding colouration class. This result suggests that effects of colour type on immunity are pronounced under the influence of energy demanding moult. Besides additional energy and other physiological expenses, avian moult is accompanied by increased risks of infection and, therefore, represents a challenge for the defensive capacity. According to analyses of long-term population data in the Moscow region, conspicuous males combined reproduction with moult significantly less frequently than pale males.

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