THE EFFECT OF COLOUR MORPH AND TEMPERATURE ON IMMUNE RESPONSE IN MALES AND FEMALES COMMON WALL LIZARD (*Podarcis muralis*) ASSESSED BY IN-VITRO EXPERIMENTS

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Colour polymorphism is the coexistence in one interbreeding population of two or more distinct and genetically determined colour forms, the least abundant of which is present in numbers too great to be due solely to recurrent mutation. The persistence of different morphs in a species is generally associated with the coexistence of alternative reproductive strategies, which involve specific trade-offs among behavioural, morphological, physiological, and other life history characteristics. However, most of evidence supporting this hypothesis is still correlative, and only few studies have checked it experimentally. The common wall lizard (*Podarcis muralis*) is a small-sized lacertid, showing highly polymorphic coloration in belly and throat, with three main phenotypes (i.e., white, yellow and red). All these morphs can occur in both sexes and within the same population, and are characterized by different phenotypic traits (i.e., body size, immuno-competence and stamina, homing behaviour, diet, and stress responses). Here, we experimentally tested the hypothesis that morphs represent alternative physiological optima for immune response with respect to body temperature. We used in vitro phytohaemoagglutinin (PHA) stimulation of T-lymphocytes performed at two opposite thermal conditions, i.e. low (22°C) and high temperature (32°C). Cell cultures were prepared from blood samples, inoculated with PHA and incubated for three days. Lymphocyte proliferation was lower in females than in males, particularly at 32°C. Irrespective of temperature, yellow males were immunosuppressed with respect to other males, confirming previous results obtained by in-vivo experiments. More interestingly, lymphocyte proliferation in white and red females sensibly decreased from 22°C to 32°C, while yellow females resumed the immunosuppressive effects of both morph and temperature thus showing the lowest immune response at both temperatures. Overall, these results confirm that the immune response of males and females depend on temperature and this relationship is morph specific, thus supporting the hypothesis that colour morph in the common wall lizard represent different physiological optima.