

Short communication — Kurze Mitteilung — En bref

**Additional experiments to unravel the enigma of *Hyles hybrid pauli* Mory (Lepidoptera : Sphingidae)**

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The origin of *Hyles hybrid pauli* Mory (Mory, 1901) remained enigmatic even after extensive experiments with primary and secondary hybrids from *H. euphorbiae euphorbiae* Linn. and *H. hippophaes hippophaes* Esp. (Loeliger, 1976). Recently, we tested the hypothesis, expressed on repeated occasions (Denso, 1909 ; John, 1932 ; Fischer, 1933), that *Hyles hybrid pauli* Mory might be a cross between a male *Hyles hybrid fischeri* John and a female *H. hippophaes hippophaes* Esp.

*H. hybr. fischeri*, which is the cross of a male *H. livornica livornica* Esp. with a female *H. hippophaes hippophaes* Esp., was obtained in 1993. The parents of the *livornica* male had been collected in the spring in southern Turkey (courtesy Dr. O. Kurz, Münster, D) and the parents of the *hippophaes* female were the offspring of the mating of a male of the *caucasica* variety found on *E. angustifolia* in Anatolia and a female of the "ordinary" *hippophaes* variety (courtesy F. Weber, Riehen, CH) (Loeliger, in prep.).

The crucial cross between a *fischeri* male and *hippophaes* female, obtained in the early summer of 1994, resulted in no more than two eggs, one of which appeared to undergo embryogenesis (H. Harbich, Salz, D). However, the caterpillar did not hatch. Of the 22 eggs deposited by a female *H. tithymali tithymali* Bds (courtesy Dr. O. Kurz, Münster, D) after mating with a *fischeri* male, none displayed signs of developing into a larva. In contrast, two of the 23 eggs resulting from the mating of two *fischeri* specimens seemed to be fertilized (observation H. Harbich, Salz, D) ; however, the caterpillars never hatched. Finally, the many hundreds of eggs deposited on vine leaves by two *fischeri* females after successful mating with *hippophaes* males were sterile.

This infertility of *H. hybr. fischeri* is probably due to the tiny size of its eggs and to the extreme size difference to the eggs of *H. hippophaes*. The eggs of *fischeri* are distinctly smaller than those of *livornica* (roughly 1:4) and are only about one sixteenth the size of *hippophaes* eggs (pers. comm. Dr. F. Karrer, Zofingen, CH).

In conclusion, evidence in favour of the above-mentioned hypothesis is meager, although not nil. Experiments should be repeated. We suspect, however, that

the *H. hybr. pauli* Mory specimen is an artefact consisting of parts of two sphingid specimens glued together, the abdomen (and antennae ?) belonging to a *hippophaes* female and the rest coming from a specimen containing *tithymali* and / or *dahlii* genes. This would also explain the conspicuous colour difference between the two parts, *hippophaes* being olive-green and the other species rubiginous brownish.

The hypothesis that the father of *H. hybr. pauli* Mory was a stray *H. dahlii* Gey. (Kyselá, 1908) is very unlikely. Still another hypothesis, i.e. that the very strange appearance is the result of the mergence of atavistic properties (Wladasch, 1939 ; 1943), is also improbable since we have never observed such conspicuous discrepancies in marking and colouration among countless hybrids of the *Hyles* genus.

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