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A simultaneous appearance of an identical morphological aberration in three *Drosophila* species. A fashion for the same mutation in several species?

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"Fashion on mutation" is a term for a simultaneous rise in frequencies of particular alleles or phenotypical aberrations in different loci of a natural habitat of a species (geographically isolated populations). Fashions on mutations *singed* bristles, *abnormal abdomen* and others were described in the populations of *Drosophila melanogaster* in the former USSR (Golubovsky *et al.*, 1974; Berg, 1972, 1982). Rise in frequencies of particular alleles is often associated with spontaneous increases of mutability level in populations. Time span of fashion on mutation is usually several years. During this period a gradual elevation of the character concentration is followed by its peak and gradual decrease to its normal value. This phenomenon occurs simultaneously in all populations of the species sometimes covering vast areas. In my opinion, the phenomenon of fashions on mutations is little known due to the fact that it is absolutely beyond explanation within the paradigms of classical population genetics. However, this phenomenon is rather common for *Drosophila* populations.

Table 1. *FenA* occurrence in *Drosophila* genus flies collected in 1999 and 2000 Russia (data provided as of late March 2000).

Species	Flies studied	Flies with *fenA*
D. mercatorum	589	177
D. sp. 99-19-01 (IvAn)	10	2
D. immigrans	102	2
D. melanogaster	2690	0
D. busckii	53	0
D. histrio	193	0
D. transversa	74	0
D. funebris	94	0

Recently a wing aberration, which we designated as fenA was found to occur with incredibly high frequency (more than 20%) in collections obtained from *Drosophila mercatorum* populations from different parts of Russia in years 1999 and early 2000 (Ivannikov and Zakharov, 2000). At the same time we discovered an absolutely identical morphological aberration in another *Drosophila* species - D.sp.99-19-01(IvAn). Although specific identity or independent taxonomic status of this species has not yet been established, one can assert with perfect certainty that within the *Drosophila* subgenus it belongs to the *repleta* group and within this group to the *hydei* subgroup (Ivannikov, 2000). Two out of ten individuals of D.sp.99-19-01(IvAn) in our posession (*i.e.*, 20%) carry asymmetrically located (on left wing in both cases) and weakly expressed but anyway easily identified fenA. This unexpected coincidence encouraged us to screen all species of *Drosophila* gathered in Russia during the last and current year and represented in our collection by no less than 10 flies for the occurrence of fenA. As a result, fenA character was discovered in one more species, *D. immigrans*. Two out of 102 flies of that species collected in Askat village (Altai Republic), *i.e.*, about 2%, carried fenA. In both cases in *D. immigrans* fenA is expressed asymmetrically (both on the right wing) with strong expression in the first case and weak in the second one. It is also worth noting that although the frequency of fenA in *D. immigrans* is by an order of magnitude smaller than in two above-mentioned species of the *repleta* group, the 2% value is

rather high for natural populations, which allows us to state the ongoing fashion on fenA in all three species (see Table 1).

In connexion with the above-mentioned I would like to propose an informal (for the time being) project for investigation of that interesting phenomenon. Fashions on mutations are transient and currently we obviously observe the peak of such fashion, which is a very short period of maybe one year during which it is possible to establish many interesting details of the described phenomenon. I assume that fashion on fenA is most expressed in synantropic species of the *repleta* group and may well have worldwide occurrence. Moreover, that fashion may be spread among the other synantropic species of *Drosophila* subgenus. Possibly, it is a global anthropogenic niche that serves as an environment for expression of that fashion. I propose to everybody interested in the matter to carry out joint research to establish, first, the area of distribution of fenA fashion in cosmopolitan species of the *repleta* group, and second, the range of species involved in that fashion. I invite all interested collegues to discuss that informal project. Obviously, such a project can be implemented only by joint efforts of researchers in different countries. Fortunately, modern communications enable such cooperative implementation of this project.

References: Berg, R.L., 1972, Dros. Inf. Serv. 48: 94; Berg, R.L., 1982, Japan J. Genetics. 57: 171-183; Golubovsky, M.D., Yu.N. Ivanov, I.K. Zakharov, and R.L. Berg 1974, Genetika (Moscow) 10: 72-83 (in Russian); Ivannikov, A.V., and I.K. Zakharov 2000, An extraordinarily high frequency of a particular morphological aberration in *Drosophila* mercatorum in different regions of Russia. The fashion on mutation? Dros. Inf. Serv. 83: 159-161; Ivannikov, A.V., 2000, An interesting fly from Siberia. Similar to *D. hydei* (Diptera, Drosophilidae) but not that one. Dros. Inf. Serv. 83: 157-158.

Availability of Materials

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I have now been retired for a little over a year and have decided to dispose of some of my library. I have a complete set of Drosophila Information Service (volumes 1 to 82) that I will sell for $250.00 plus shipping costs. I also have a copy of Demerec, *Biology of Drosophila*, a bound copy of Bridges and Brehme, *The Mutants of Drosophila melanogaster*, and a copy of Lindsley and Grell, *Genetic Variations of Drosophila melanogaster*. All of these are priced at $20.00 each plus postage.