altitude. At the highest altitude of 2300 m a new species was collected. This species belongs to *montium* subgroup of the *melanogaster* species group. The new species has been given the name *D. palniensis* and will be described elsewhere.

Acknowledgments: The authors are grateful to Prof. H.A. Ranganath, Chairman, Department of Studies in Zoology, University of Mysore, for providing facilities and constant encouragement to carry out the work. We also thank Mr. K. Raviram for his kind help during the collection trip.

Marinković, D., V. Stojiljković and S. Stanić. Faculty of Biology, Belgrade, Yugoslavia. The changes in fitness components in groups of *D. melanogaster* with different rates of embryonic development.

A long-run analysis of the dynamics of preadult and embryonic development, and its correlation with other fitness, physiological, and biochemical characteristics of observed individuals (N > 2000), has resulted in an understanding of complex relationships, based on developmental homeostasis of this species.

Individuals in which development starts with an extremely fast embryogenesis (*i.e.*, less than 15 hours at 22 °C, on the surface of a yeast medium), have, on an average, also faster larval and pupal development, greater wing length, total life-span, and male fertility (Figure 1). On the contrary, the females from that group have somewhat smaller egg-laying capacity, and both larvae and adults have lesser mobility. It comes out that larvae which hatch after more than 30 hours of embryonic development are remarkably more mobile (Jovanovska, 1990) and may search for a new niche, since the surface could be already occupied by larvae having the faster embryogenesis.

As for physiological traits, activity of a majority of studied enzymes is greater in individuals with the shortest preadult development (Marinković *et al.*, 1986; Milošević and Marinković, 1989). This has been correlated with the rDNA spacer lengths (Cluster *et al.*, 1987), *i.e.*, with an eventually greater capacity for production of ribosomal RNA and specific proteins.

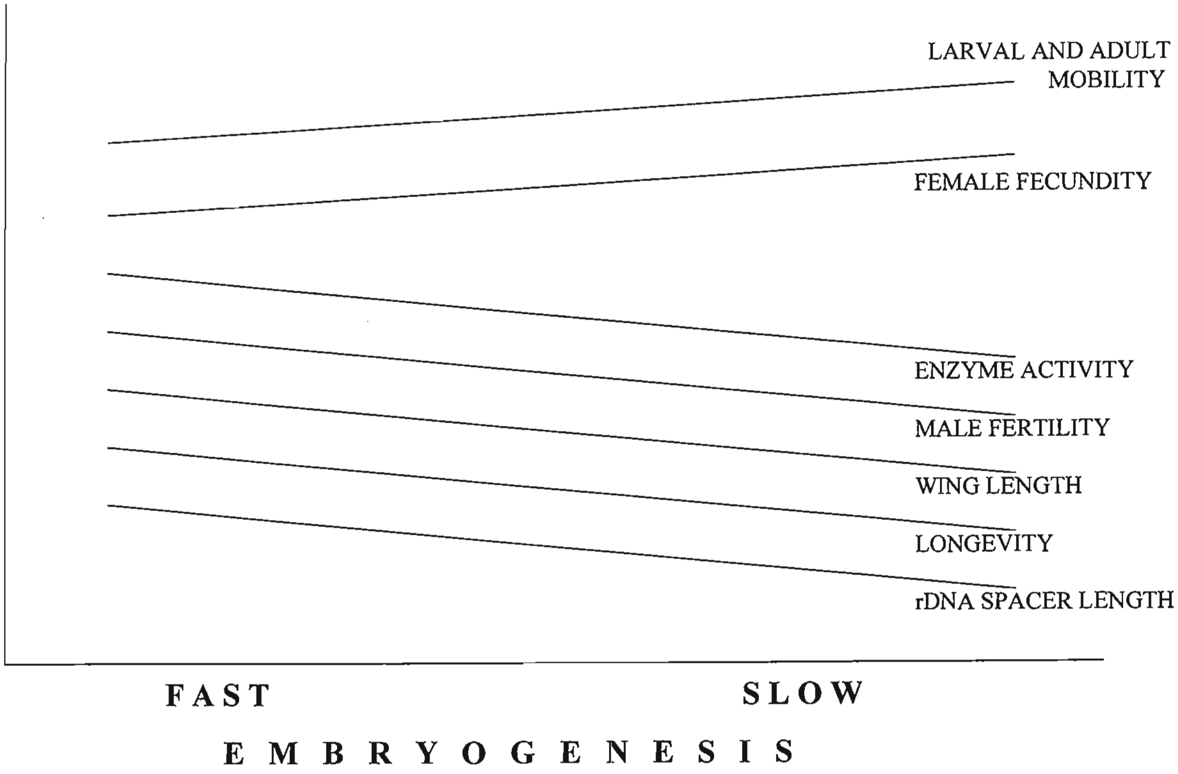

Figure 1. Changes in fitness components in groups of *Drosophila melanogaster* individuals with different rates of embryonic development.

Complex relationships between studied traits are telling us how much could be restricted adaptive biological variation, and which are developmental strategies to reduce enormous potentials of such a variation to efficient ontogenetic programs realized in eclosed adult individuals.

References: Cluster, P.D., D. Marinković, R.W. Allard, and F.J. Ayala 1988, PNAS 84: 610-614; Jovanovska, M., 1990, Ph.D. thesis at the University of Belgrade; Marinković, D., M. Milošević, and M. Milanović 1986, Genetica 70: 43-52; Milošević, M., and D. Marinković 1989, Genetique Selection Evolution 21: 17-32.

Koryakov, Dmitry E.[1], Elena S. Belyaeva[2], and Igor F. Zhimulev[1,2]. [1]Department of Cytology and Genetics, Novosibirsk State University, Novosibirsk 630090, Russia [2]Institute of Cytology and Genetics, Novosibirsk 630090, Russia. The new *Drosophila melanogaster* nonlethal inversion, arisen from the $In(2R)bw^{VDe2}$.

In the stock $In(2R)bw^{VDe2}/CyO$, received from the Umea *Drosophila* stock center, part of the flies spontaneously lost lethality in homozygous condition. The new stock, called $In(2R)bw^{VK}$ - *brown Variegated of Koryakov*, was constructed. Cytological analysis has shown that the new stock has the same inversion - 41A-B - 59D6-E1, as the bw^{VDe2}.

The viability was studied of heterozygotes of bw^{VDe2} and bw^{VK} with other rearrangements, displaying *bw-Variegation* phenotype ($In(2R)bw^{VDe1}$, $In(2R)bw^{V1}$, $T(2,3)bw^{VDe4}$, and $T(2,3)bw^{V4}$), and with two lethals uex^4 and rl^9, located according to Dimitri (1991) in heterochromatin distally and proximally to the break point of the inversion bw^{VDe2}, respectively (Table 1). In the case of bw^{VK} the expected ratio of the Cy/Cy^+ offspring is 1:1, in the case of bw^{VDe2} the ratio is 2:1, and the percentage of surviving flies was calculated from these ratios. It should be noted that the surviving flies bw^{VK}/bw^{VDe2} slightly differ in reciprocal crosses. In comparison with bw^{VDe2}, viability of heterozygotes of bw^{VK} with bw^{VDe1}, bw^{V1}, and bw^{VDe4} is noticeable higher, but with bw^{V4} it is lower. Viability of bw^{VK}/uex^4 flies is greatly higher than expected.

Table 1. The viability of heterozygotes of bw^{VDe2} and bw^{VK} with other rearrangements, displaying *bw-Variegation* phenotype and with two lethals (at 25°C).

		bw^{VK}		bw^{VDe2}	
		number of flies	Survived (in %%)	number of flies	Survived (in %%)
bw^{VK}	Cy			124	
	Cy+			116	96.7
bw^{VDe2}	Cy	133			
	Cy+	107	89.2		
bw^{V1}	Cy	121		160	
	Cy+	94	87.4	38	57.6
bw^{vDe1}	Cy	135		164	
	Cy+	19	24.7	0	0
bw^{V4}	Cy	102		110	
	Cy+	41	57.3	33	68.8
bw^{VDe4}	Cy	82		134	
	Cy+	22	42.3	8	17.0
uex^4	Cy	82		157	
	Cy+	168	134.4	63	86.3
rl^9	Cy	122		153	
	Cy+	126	101.6	80	102.6

Table 2. A number of flies with wing defects from some crosses.

	number of flies	
	completely unexpanded wings	turbid, crumpled wings
bw^{VK}/bw^{V4}	7*	23**
bw^{VK}/bw^{VDe4}***	4*	5
bw^{VDe2}/bw^{V1}	0	3
bw^{VDe2}/bw^{V4}	14	18
bw^{VDe2}/bw^{VDe4}	3	2

* - Black mouthparts. **- One wing may be smaller than another one, sometimes with bubbles. ***- In this cross a fly with notched wings planted apart (looking like Notch and Dichaete) was found

In some crosses the flies with wing defects were found in small amounts (Table 2), which is supposedly due to position effect variegation of the *uex* locus, because a very similar phenotype was described for the *uex* homozygotes (Maeda, 1984).

So, losing the lethality for bw^{VK} is accompanied by increasing viability with other *bw-Variegated* rearrangements.

Comparison of genetic inactivation as a result of position effect variegation of the *bw*-locus was performed with the inversions bw^{VDe1}, bw^{VDe2}, and bw^{VK}.

Cis-effect of bw^+-variegation in rearranged chromosomes can be observed in $R(bw^+)/R^+(bw)$ heterozygotes where *R* is eu-heterochromatin rearrangement. Precise calculation of pigmented facets is possible if their number is not higher that 30 per eye. Therefore, we established five classes of variegation: 0, 1-10, 11-20, 21-30 and more than 30 pigmented facets per an eye. As a rule, both eyes of the fly