Budnik, M., and L. Cifuentes. Departamento de Biología Celular y Genética, Facultad de Medicina - Universidad de Chile, Casilla 70061 - Correo 7 - Santiago - Chile, Fax: 56-2-7373158. Larval viability of *D. subobscura* competing with *D. pavani* and *D. simulans* at different initial frequencies of eggs.

Introduction: Since *Drosophila subobscura* was first detected in Chile (Brncic and Budnik, 1980), several experimental studies have been performed in order to investigate preadult competition between this species and the most common species found in the same collecting sites. All investigations showed *D. subscura* was a bad competitor (Budnik *et. al.* 1983, 1995).

In this note the authors wish to report the results of interspecific larval competition of *D. subobscura* with *D. simulans* and *D. pavani* in bispecific combination; but with different initial frequencies of eggs. The aim is to contribute further to the understanding of the colonization success of *D. subobscura* in Chile.

Materials and Methods: The following stocks were used: a) Chilean stock of *D. subobscura*, b) a stock of *D. pavani* an endemic Chilean species of the *mesophragmatica* group (Brncic and Koref-Santibañez, 1957) and c) a stock of *D. simulans*. All three strains came from La Florida, Santiago, Chile (in the southeastern zone of Santiago) and had been maintained in mass culture for several months before the experiments were started.

The methodology used to study the effect of preadult competition on the survival was similar to that reported by Budnik *et al.* (1983, 1995). Ten vials per group were used. Each vial contained 10 cc of basic cornmeal-yeast agar medium, into which either 10, 50 or 90 eggs of *D. subobscura* were put together with 90, 50 or 10 fertilized eggs of *D. pavani* or *D. simulans* (a total of 100 eggs per vial). As a control 10 vials were established with the same amount of medium, each sown with 100 fertilized eggs of either *D. subobscura*, *D. simulans* or *D. pavani*. The eggs represented a random sample of those laid by 150 inseminated females from each stock.

Table 1. Preadult viability of *D. subobscura*, under conditions of interspecific competition with *D. pavani* and *D. simulans* with different initial frequencies of eggs. In parenthesis, competitor (10 vials/group).

No. of eggs x vial		% of adults emerged	
D. subobscura	*D. pavani*	*D. subobscura*	*D. pavani*
10	90	7.00	59.70
50	50	33.80	57.20
90	10	51.60	72.00
100	—	53.10	—
—	100	—	48.70
		$\chi^2_3 = 101.70$	$\chi^2_3 = 36.60$
D. subobscura	*D. simulans*	*D. subobscura*	*D. simulans*
10	90	35.00	60.20
50	50	26.20	50.20
90	10	45.30	60.00
100	—	53.10	—
—	100	—	63.40
		$\chi^2_3 = 101.70$	$\chi^2_3 = 24.50$

For $\chi^2_3 = 7.81$ with DF = 3. $p = 0 < 0.05$

The eggs were allowed to hatch and to develop at 18°C; emerging adults were then counted and discarded.

Results and Discussion: Table 1 shows that the viability of the three species varies according to the initial frequencies of eggs of the competitor species; the differences are statistically significant. These findings should be taken into account when studying preadult competition. Regarding *D. subobscura*, these results once more show that this species is a bad competitor.

In face of the successful colonization of *D. subobscura* in Chile it is difficult to believe that the species could be subjected to competitive interaction such as those described above.

References: Brncic, D., and S. Koref-Santibañez 1957, Evolution 11:300-310; Brncic, D., and M. Budnik 1980, Dros. Inf. Serv. 55:20; Budnik, M., and D. Brncic 1983, Oecología, Berlin 58: 137-140; Budnik, M., and L. Cifuentes 1995, Evolución Biológica VIII and IX:37-47.

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Theoretical population geneticists, and laboratory experimentalists as well, who use *Drosophila* species as a model organism lament on their lack of knowledge on different life aspects of *Drosophila* in wild habitats.

I have started faunistical researches of *Drosophila* along the Danube course with the belief that these results would improve our comprehension of the species