Four cages were initiated simultaneously. The frequency of the recessive allele se was .9 in cage C1 (control) and P1 (parasitized); .1 in cages C2 and P2. Eggs were sampled weekly in each cage and after proper development, emerging flies were examined and the allelic frequency estimated by the square root of homozygous se/se frequency.

From the second week onwards, 200 Leptopilina boulardi couples were weekly introduced in cages P1 and P2. The biology of this wasp is very similar to that of its relative, L.heterotoma (=Pseudeucoila bochei). (see Van Lenteren 1976): females lay their eggs inside late 1st or early 2nd instars of D.melanogaster. Parasitized larvae grow up and pupate. At 25°C adult wasps emerge from the host's puparium on day 18 or 20 after
Since the developmental time of the parasite widely exceeds the fortnight's stay of cups in cages, no parasite could emerge inside cages and the weekly introduction of a new batch of adult parasites in cages P1 and P2 ensured a constant level of infestation allover the experiment.

Figure 1 shows the genetic evolution of the four experimental populations. Control populations C1 and C2 show a typical convergent evolution towards a .20 frequency equilibrium of the se allele, which is a classical value (Anxolabehere 1976). Parasitized cages P1 and P2 also show a convergent evolution. They reach their genetic equilibrium at the same time as control cages do, but the allelic frequency of se is much higher: .35. This striking difference obviously results from the presence of parasites in cages P1 and P2. The 1.8 fold increase in the equilibrium frequency of the less fitted allele demonstrates the possibility for a parasite, here a "parasitoid", to strongly affect the genetic makeup of the host population.

Further experiments are being carried out to clarify the underlying mechanisms. Preliminary results suggest that they are more complex than a trivial preference of the parasite for hosts of a given genotype.

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Interspecific inhibition between D.melanogaster and D.simulans during oviposition process.

The purpose of this communication is to present a new oviposition behaviour observed in competition studies. One of the aspects studied in my doctoral thesis ("Competencia interespecifica entre D.melanogaster y D.simulans", unpublished) was to determine if the female fecundity of one of these species could be modified by the presence of virgin females of the other species. To achieve this, male and female virgins of both species were separately aged to 5 days. Then, groups of pairs of each species were mated and later the males were discarded. With these newly mated females, two experimental units were achieved. In experiment-1, four tests were simultaneously initiated with the following females per vial: Test-M, with 8 mated melanogaster females; Test-M(S), with 8 mated melanogaster females + 8 virgin simulans females; Test-S, with 8 mated simulans females; Test-S(M), with 8 mated simulans females + 8 virgin melanogaster females.

The females were allowed to lay eggs for 24 hours in vials filled with standard baker's yeast medium. Then, the 8 or 16 females were transferred to vials with fresh food. After 48 hours, the females were individually assessed for fertility. Any replication with dead or sterile females was discarded. The number of eggs laid throughout the period 0-24 hrs (first vial) and 24-48 hrs (second vial) were recorded and likewise, the number of pupae and adults produced. All experiments were carried out at 21.5°C and constant light. The results are shown in Table 1.

In D.melanogaster, no different fecundity was found between tests M and M(S), that is, the presence of virgin females of D.simulans did not affect the melanogaster oviposition process in a two day period. In D.simulans, however, a remarkable reduction of fecundity was apparent when virgin melanogaster females were present in the vial. This inhibition of laying makes the progeny of test S(M) 83% of the progeny obtained in test S. Undoubtedly, this inhibitory behaviour during oviposition must be originated through some effect derived from the presence of virgin females. A possible objection to this could be the different adult density of tests S and S(M) with 8 and 16 females, respectively. This was solved

Table 1. Results of experiment-I. Means and standard errors of the four tests described in the text, and comparison between M and M(S) and between S and S(M) by means of a student's "t".

		M	M(S)	P	S	S(M)	P
	Day-1	101.71± 8.92	84.66± 9.37	n.s.	81.20± 6.75	55.14±4.17	<0.001
Eggs	Day-2	49.14± 5.25	39.16± 3.11	n.s.	36.00± 4.21	31.86±6.06	n.s.
	Total	150.85±14.97	123.83±11.97	n.s.	117.20±10.14	87.00±6.81	<0.05
	Day-1	85.43± 6.77	80.00± 8.60	n.s.	61.20± 5.30	44.57±4.44	<0.05
Pupae	Day-2	45.29± 5.15	36.50± 2.67	n.s.	28.40± 4.15	26.43±5.81	n.s.
	Total	130.71±11.28	116.50± 9.61	n.s.	89.60± 8.01	71.00±5.44	n.s.
	Day-1	75.28± 7.77	73.83± 6.51	n.s.	40.00± 3.21	32.57±3.18	n.s.
Adults	Day-2	41.29± 4.52	34.50± 2.15	n.s.	24.00± 3.46	20.71±3.25	n.s.
	Total	116.57±12.15	108.33± 8.39	n.s.	64.00± 2.63	53.29±3.69	n.s.
	Replications	7	6		5	7	

Table 2. Results of experiment-II. Means and standard errors referred to the six tests described in the text, and multiple comparison between M,M(M) and M(S), and between S,S(S) and S(M) by means of the SNK-method (Sokal & Rohlf 1969).

	M	M(M)	M(S)	S	S(S)	S(M)
Eggs						
Day-1	84.11±2.68	76.25±6.22	63.13±3.45	70.00±5.90	74.71±6.44	28.25±3.75
	M(M) M	M(S)		S S(S)	S(M)	
Day-2	47.89±2.88	51.00±3.08	41.63±2.51	59.75±5.44	61.14±4.04	32.00±4.41
	M M(M)	M(S)		S S(S)	S(M)	
Total	132.00±4.64	127.25±7.35	104.75±5.15	129.75±9.16	135.85±7.53	60.25±7.29
	M M(M)	M(S)		S S(S)	S(M)	
Pupae						
Day-1	73.22±3.06	68.25±5.06	59.38±2.76	55.13±4.09	55.57±5.38	21.88±2.70
	M M(M)	M(S)		S S(S)	S(M)	
Day-2	43.22±2.71	45.63±3.46	39.75±2.70	48.50±4.53	47.43±3.56	29.00±3.32
	M(M) M	M(S)		S S(S)	S(M)	
Total	116.44±4.09	113.88±6.00	99.13±4.41	103.63±7.47	103.00±7.41	50.88±4.76
	M M(M)	M(S)		S S(S)	S(M)	
Adults						
Day-1	67.77±2.97	63.12±4.48	56.00±2.00	39.75±3.53	38.71±2.93	18.12±1.49
	M M(M)	M(S)		S S(S)	S(M)	
Day-2	40.88±2.26	42.87±3.40	36.75±2.18	34.37±3.55	33.43±2.94	23.50±2.89
	M(M) M	M(S)		S S(S)	S(M)	
Total	108.66±3.64	106.00±5.45	92.75±3.29	74.12±5.98	72.14±4.98	41.62±3.15
	M M(M)	M(S)		S S(S)	S(M)	
Replications	9	8	8	8	7	8

by means of experiment-II, carred out some weeks later with the same populations. In addition to the four tests previously described, two new tests were made: Test-M(M), with 8 mated + 8 virgin females of D.melanogaster; Test-S(S), with 8 mated + 8 virgin females of D.simulans; and therefore, with a 16-adult density per vial.

The methodology was the same as for experiment-I, and the results appear on Table 2. The mean values were compared by means of the SNK-method (Sokal & Rohlf 1969). Two means not joined by a horizontal line are different with a 95% probablity or greater.

Surprisingly enough, we can clearly observe an inhibition in the fecundity of D.melanogaster when virgin females of D.simulans are present. The productivity of test M(S) was 85% of the productivity of test M(M). The result cannot be imputed to a different adult density. Even more amazing was the response of D.simulans: the inhibition of fecundity in presence of virgin females of D.melanogaster S(M), was so large that the productivity obtained in 48 hrs only represents 56% of that obtained in absence of its sibling species, S(S). This is the first time an inhibitory behaviour during the oviposition process is described in the pair melanogaster-simulans. Some reports working with these species have demonstrated how the presence of eggs (Moore 1952; Eoff 1973) or larvae (Moth & Barker 1976) of one of these species can inhibit the normal laying of the other species. In my experiments, the virgin females do not lay eggs (ovules) and this is evident when comparing the egg-pupa viability of the different tests: when virgins are present in a test, the egg-pupa viability was the same or greater than when they are absent. Therefore, the simple presence of virgins was the factor causing an inhibitory response in oviposition. This could be related to species-specific visual or olfactory clues. Mainardi (1968) and Krause et al. (1980) have found a stimulating effect upon fecundity in D.melanogaster originated by the previous presence of males on the food which could be ascribed to a male pheromone. The different response of D.melanogaster found between experiments I and II carried out at different times, does not have a simple explanation, although it is closely related with several competitive results (inhibition-facilitation; mutual inhibition; mutual facilitation; no-interference) found in my doctoral thesis to study competition at different times.

In the present paper, the inhibitory effect of foreign females was smaller on the second day, and this suggests some type of female habituation.

A female behaviour causing such drastic decrease in the fitness of a species must have some biological meaning. The possibility exists that the female inhibition could be the result of a selective pressure acting to avoid the mixed development of both species. If the preadults of these sibling species are grown in the same food, the frequency of interspecific hybridization could be high since, first, the newly emerged adults have not developed to a full extent their sexual discriminative sense (Barker 1962; Manning 1967) and second, because the heterospecific pairing is more frequent when larvae of both species are developed in the same vial (Eoff 1973). If this supposition, under study at present time, were correct, then the above mentioned inhibitory behaviour could have an adaptative value.

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The effect of the temperature upon the variability of the gene pool in a Brasilian population of D.melanogaster.

It has been demonstrated in the following note that the genetic composition of the Porto-Alegre 1982 population has varied between September and November, probably in relation with climatic conditions. Temperature is one of the two major environmental parameters (the other is relative humidity) which have a biological significance for Drosophila (Alahiotis & Pelecanos 1980; Ayala 1968). Therefore, the effect of the temperature in this change has been examined.

The samples of September and November were kept at 18°C during eight months. Thus we are allowed to consider that September population was maintained in experimental conditions of temperature near to those of nature (21°C), while November population was maintained in experimental conditions of temperature very different of those in nature (27°C). Tables 1 and 2 give for each locus, the sample size (N), the genotypic frequencies and the X^2 values