Fluorographs of the proteins resolved by gradient SDS-PAGE show that in the fat body (Fig. 2a,b), amino acids were incorporated into vitellogenin proteins almost immediately after the pulse, and by one hour of chase (lane 4), the three newly synthesized vitellogenin proteins and another unrelated protein of about 75,000 daltons were the predominant labeled proteins. By 6 hr, scores of other proteins had also been synthesized, some of which subsequently became even more abundant in this tissue than the vitellogenin proteins. Incorporation of labeled amino acids into proteins continued for four days with only a slight decrease in intensity.

In hemolymph (Fig. 2c,d), the first proteins to be detected in trace quantities at the 15 min chase were the three vitellogenins, followed by two larger proteins in the range of 75,000 daltons. These serum proteins together with the vitellogenins rapidly increased in quantity after one hour of chase, and reached a maximum by 24 hr. They remained as the predominant hemolymph proteins throughout the chase.

In the ovaries (Fig. 2e,f), the appearance of the vitellogenin proteins was similar to that in the hemolymph. They were detected following 15 min chase and by 6 hr represented the predominant class of egg proteins. Several other less abundant proteins showing a pattern of electrophoretic mobility similar to that of proteins in the fat body were also found after the 6 hr chase. Whether these are identical proteins in the two tissues is not known.

It is of interest to notice the quantitative differences in the three vitellogenins between tissues. In the fat body, the V_2 protein is synthesized in lower quantitites than the V_1 and V_3 proteins, while in the hemolymph and ovary all three proteins are present in roughly equimolar amounts. This observation supports the suggestion that the vitellogenins synthesized in the D.grimshawi ovary (Kambysellis, Hatzopoulos & Craddock 1983) are secreted into the hemolymph prior to their sequestration by the oocyte. Experiments to document this assumption are now in progress.

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References: Kambysellis, M.P., P.Hatzopoulos & E.M.Craddock 1983, Genetics 104:s39; Kambysellis, M.P. 1984, DIS 60: ; Kambysellis, M.P., P.Hatzopoulos & E.M.Craddock 1984, W.Roux's Archiv. submitted; Wheeler, M.R. & F.E.Clayton 1965, DIS 40:98.

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Studies of Drosophilidae (Diptera) in Yugoslavia. V.Collections from Mljet.

At the end of August and beginning of September 1982, we collected Drosophilidae ssp. from two localities on the Adriatic island of Mljet: Pomena and St.Mary.

Pomena is characterized by an abundant vegetation of aleppo pine (Pinus halepensis), holm oak (Quercus ilex) and other kinds of plants characteristic of those forests. At this place we also studied the dispersal rate of D.subobscura, see Taylor et al. 1984. St.Mary is a small island about 300 m in diameter, in a bay of Large Lake on Mljet; it is an island about 300 m in diameter, in a bay of Large Lake on Mljet; it is an island within an island. Here a Benedictine Monastery, St.Mary, was built in the twelfth century and has since been renovated to become a small hotel. Although this location is much drier than Pomena, several species of pine (Pinus pinea, Pinus halepensis), cypress (Cupressus sempervirens), bay (Laurus nobilis) and olive (Olea europea) are found here, as are many cactic (especially Opuntia ficus indica). The ground is covered with characteristic grasses and rocks. In both localities the flies were caught by sweeping nets over fermenting mixed fruit (watermelon, grape and apple) baits exposed on open plates. Flies were preserved in alcohol and brought to the laboratory for identification. In Pomena they were collected only in the evening; at St.Mary they were collected in the mornings as well.

The results are shown in Table 1. It can be seen that in the relatively "wilder" habitat, Pomena, subobscura flies are six times as numerous as melanogaster/simulans flies. This ratio is reversed at St.Mary, where many more melanogaster/simulans flies were collected, the ratio being 1:2.5.

The ratio between sibling species, melanogaster:simulans, is also different in these two localities: at Pomena it is 1:4.3, while at St.Mary it is 1.2:1.

Table 1. Drosophila found in two collection locations on Mljet, Yugoslavia.

Species	Pomena evening		St. Mary evening		St. Mary morning	
	males	females	males	females	males	females
Drosophila:						
D.cameraria		2				
D.funebris			1	1		1
D.hydei						1
D.melanogaster	51	73	183	323	193	322
D.phalerata	1	2				2
D.simulans	233	303	164	200	233	240
D.subobscura	1077	2995	172	304	72	20
D.testacea		1		2	1	
Acletoxenus:						
A.formosus	1					
Leucophenga:						
L.maculata	2	2				
Scaptomyza:						
S.pallida	2	1	1	2	1	1
TOTAL	1367	3379	521	832	500	587

Table 2. Summary of Drosophila found from Adriatic collection sites in Yugoslavia.

Species	Localities			
	Mljet	Brioni	Kupari	Porec
Drosophila:				
D.ambigua				1
D.busckii		1		
D.cameraria	2			
D.funebris	3	3		8
D.helvetica				39
D.histrio				5
D.hydei	1	24	7	
D.immigrans		8	48	63
D.littoralis				1
D.melanogaster	1145	136	178	512
D.obscura				1
D.phalerata	5			58
D.repleta			5	
D.simulans	1373	443	1135	204
D.subobscura	4640	178	1957	2811
D.testacea	4		3	149
D.transversa			1	1
D.tristis				1
Acletoxenus:				
A.formosus	1			
Amiota:				
A.flavopruinosa			1	
Leucophenga:				
L.maculata	4			
Scaptomyza:				
S.pallida	8			3
TOTAL	7168	793	3335	3857

The sex ratio of the dominant Drosophila species in these localities is also interesting--especially of D.subobscura. In the evening collections of Pomena only 26.5% males were found, while at St.Mary 36% and 78% males were found in the evening and morning collections respectively.

In Fig. 1, the localities in Yugoslavia in which Drosophilidae fauna have been studied up to now are identified. Comparing the Adriatic sites, Table 2, it can be seen that Drosophila fauna of Mljet more closely resembles that of the North-Adriatic island Briono (Kekić & Marinkovic 1979) than that of Kupari or of Poreć (Bächli & Kekić, in press).

References: Kekić, V. & D.Marinkovic 1979, Aquilo Ser. Zool. 20:118-128; Taylor, C.E., J.R.Powell, V.Kekić, M.Andjelkovic & H.Burla 1984, Evolution, in press.

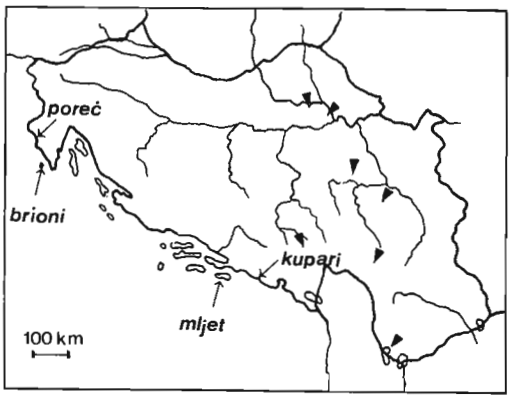

Fig. 1. Collection localities in Yugoslavia.