Although there are no differences in mean lifespan between females maintained on the two yeast species, the fitness of **D.buzzatii** is higher on the cactophilic yeast, at least in terms of higher initial average fecundity and survival. Comparison of these fitness components for flies maintained on other naturally occurring cactophilic yeasts would be of interest.

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References: Barker, J.S.F., P.D. East, H.J. Phaff & M. Miranda 1984, Microbial Ecol. 10:379; Barker, J.S.F. & W.T. Starmer (eds) 1982, Ecological Genetics and Evolution: The Cactus-Yeast-Drosophila Model System, Academic Press Australia, Sydney; Markow, T.A. 1982, Ecological Genetics and Evolution: The Cactus-Yeast-Drosophila Model System (Barker & Starmer, eds), Academic Press Australia, Sydney.

Bel, Y. and J. Ferré. University of Valencia, Spain. Regulation of eye-pigment metabolism in **Drosophila melanogaster:** effect of high doses of aromatic amino acids in the diet.

It has been reported that the "in vivo" hydroxylation of aromatic amino acids (phenylalanine, tyrosine and tryptophan) requires 5,6,7,8-tetrahydrobiopterin, a pteridine derivative. In **Drosophila melanogaster**, the synthesis of this cofactor shares some metabolic steps with the synthesis of the red eye-pigments (also pteridine derivates). For this reason we considered it interesting to see how the pteridine pathway responded to high doses of aromatic amino acids in the diet. Since tryptophan is a precursor of xanthommatin (brown pigment of **Drosophila** eyes), metabolites of this pathway were also analyzed.

Increasing doses of L-tyrosine, L-tryptophan and L-phenylalanine were given to the larvae till the moment of pupation. Pupae were transferred to new non-supplemented media and 9-day old adults analyzed for eye-pigment metabolites.

Viability was found diminished when phenylalanine was used (21 adults per 100 eggs with the highest load), whereas no change in viability was found in flies fed with similar doses of tyrosine and tryptophan. Tyrosine was also found not to affect developmental time. Tryptophan and phenylalanine delayed pupation and eclosion times. Phenylalanine caused longer delays and lower synchronization of the eclosion times.

Pteridines were measured in extracts of wild type flies raised in media supplemented with the different amino acids. Table 1 summarizes the results obtained with the highest loads (266.7 mg/ml of food). Regarding xanthommatin metabolites, xanthurenic acid increased when flies were fed with tryptophan and decreased in flies fed with phenylalanine. Xanthurenic acid 8-O-glucoside and kynurenic acid also appeared in chromatograms of flies fed with tryptophan (these two metabolites are not detected in chromatograms of the wild type raised in standard media). No change was found using tyrosine. Xanthommatin biosynthesis was already known to be enhanced when tryptophan was added to the medium, and inhibited when phenylalanine and tyrosine were used instead (Puckett & Petty 1980).

Table 1. Levels of pteridines in flies raised in media supplemented with different amino acids (266.7 mg/ml of food). "Drosopterins" estimation was carried out after selective extraction in acidified ethyl alcohol (Real et al. 1985). The other pteridines were estimated after thin-layer chromatography on cellulose. + = like in the non-supplemented control; 1- = diminished; 1+ = increased; values in parenthesis need further confirmation.

	Supplemented amino acid		
Pteridines	L-Tyrosine	L-Tryptophan	L-Phenylalanine
"Drosopterins"	(+)	1-	1-
Isoxanthopterin	+	1-	1-
H_2-Biopterin	1+	(1+)	1-
Biopterin	1+	+	1-
Pterin	1+	+	?
Sepiapterin	1+	+	1-
Acetyldihydrohomopterin	+	+	1-

The decrease of pteridine and xanthommatin biosynthesis in flies raised on phenylalanine media seems to be a consequence of a general toxic effect of this amino acid on the development of the insect. However it is worth noting that a blue fluorescent spot (probably a pteridine) appears overlapping with pterin in chromatograms of flies raised in phenylalanine media. The accumulation of this metabolite could be the result of a specific response of the pteridine pathway to phenylalanine loads. This possibility is currently being investigated in our laboratory.

References: Puckett, L. & K. Petty 1980, Biochem. Genet. 18:1221-1228; Real, M.D., J. Ferre & J.L. Mensua 1985, DIS 61 (this issue).