

4. Addition of live yeast to both media, in an amount previously determined to be sufficient for normal development, resulted in consistent development times for successive generations, but significantly different between the two media (i.e., compare the average development time on the two yeast supplemented media).

We performed a third experiment to determine if the difference in pH of the two live yeast supplemented media was responsible for the difference in average development times. Batches of banana medium were prepared in the usual manner, with the addition of varying amounts of hydrochloric acid. The acidity of each batch of medium was determined with a pH meter. Adult flies of the same stock as the previous experiment were pre-fed on yeast supplemented banana medium, and then transferred to the acidified cultures, to which no live yeast had been added. Six pairs of flies were placed in each culture and removed after four days. Temperature was $22^{\circ}\text{C} \pm 2^{\circ}$. The results of this experiment are shown in Table III.

Table III

	pH of acidified medium							
	<u>4.80</u>	<u>4.60</u>	<u>4.45</u>	<u>4.30</u>	<u>3.80</u>	<u>3.50</u>	<u>3.25</u>	<u>2.55</u>
Average development time (days)	12.5	12.6	12.6	11.8	12.6	12.4	12.6	12.8
Number of cultures	5	5	5	5	5	5	5	5
pH of banana medium: 4.8			pH of cornmeal medium: 3.4					

From these results, it is apparent that the difference in average development time on banana and cornmeal media is not due to pH difference. Indeed, the pH has no pronounced effect between 2.55 and 4.80. Sang (1956, J. Exp. Biol. 33: 45) reported that early growth of *D. melanogaster* is slightly retarded in a gel medium with 10% killed yeast, as compared to growth on live yeast alone. He suggested this was due to difficulty of the first and early second instar larvae in feeding on a non-particulate surface as opposed to the particulate nature of living yeasts and bacteria, the natural food. In our case, the living yeast is equally accessible to larvae in both types of media (on the surface). However, our cornmeal medium is much softer and more particulate than the banana medium, allowing the larvae to move through it more easily. This suggests that the larvae develop faster on the yeast supplemented cornmeal medium than on the yeast supplemented banana medium, either because they can move through the cornmeal medium faster, and therefore eat at a faster rate, or because they expend less energy in pushing through the medium, and therefore need to eat less volume in order to attain the necessary size for pupation, and therefore, pupate sooner.

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Collections of *Drosophilid* flies were made during a period ranging from May to August in 1970 at Mt. Sok-ri (Chung book Province) and Mt. Kae ryong (Chung nam Province) in Korea. Most of these flies were collected by sweeping method. Six species of wild yeasts were iso-

lated from the crops of *Drosophilid* flies. Among those yeasts *Saccharomyces florentinus* and *Saccharomyces cerevisiae* grew well on the medium for the Wagner Y-2 strain and also *D. auraria*

Table 1. Wild yeasts isolated from the crops of *Drosophila*.

<u>Drosophila species</u>	<u>wild yeasts</u>
<i>Drosophila</i> (<i>Sophophora</i>) <i>rufa</i>	<i>Saccharomyces florentinus</i>
<i>Drosophila</i> (<i>Drosophila</i>) <i>brachynephros</i>	<i>Saccharomyces florentinus</i>
<i>D. (D.) nigromaculata</i>	<i>Saccharomyces cerevisiae</i>
<i>D. (D.) immigrans</i> (female)	<i>Trichosporon capitatum</i>
<i>D. (D.) immigrans</i> (male)	<i>Trichosporon fermentans</i>
<i>Leucophenga</i> (<i>Trichiasphiphenga</i>) <i>argentosa</i>	<i>Torulopsis salmanicensis</i>
<i>Leucophenga</i> (<i>Leucophenga</i>)	<i>Torulopsis dattila</i>

D. immigrans, *D. brachynephros*, and *D. busckii* bred well on cornmeal media with these yeasts (*Saccharomyces florentinus*, *Saccharomyces cerevisiae*).