Improvement of Corn-flour Medium for Larval Culture of Oriental Fruit Fly

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Simple, efficient and relatively low-cost rearing media for the oriental fruit fly, *Dacus dorsalis* Hendel, have been developed in the last several years (Bateman, 1972). Tanaka *et al.* (1969) succeeded in developing a low-cost diet for the fruit fly using sugar, wheat shorts and middlings, inexpensive dried torula yeast and other ingredients. Watanabe and Kato (1971) described a larval medium made of corn-flour and additional ingredients for the oriental fruit fly. This medium, however, has not been well defined in terms of the content of each ingredient. Although the torula yeast is commercially available in Japan, it is also relatively expensive. In an effort to cut down the expense for the corn-flour medium, we tried to reduce the ratios of yeast, sugar and moisture control substance against the content of corn-flour.

An improvement was obtained by the formulation given in Table 1. Corn-flour was passed through a sieve of 20–mesh. Brewer's yeast, toilet tissue, butyl *p*-hydroxybenzoate and about a half amount of water were mixed and boiled for ten minutes. Then the other half of the water was added to cool the mixture and the remaining ingredients were added and mixed thoroughly.

Table 1. An improved medium for the oriental fruit fly

Ingredient	Amount
Brewer's yeast	5.0 g
Butyl *p*-hydroxybenzoat	0.1-0.15 g
Sugar	5.0 g
Corn-flour (20–mesh)	50.0 g
HCl (Concn.)	0.2 cc
Toilet tissue	3.0 g
Tap water	80.0 cc

Applied to 1,000 eggs of the oriental fruit fly, this formulation could produce 700 to 800 adults. The duration of the larval stage on this medium was 6 to 8 days at 25°C. This medium is now used for the experimental studies on eradication of the oriental fruit fly in the Bonin Islands and the Amami Islands.

Butyl *p*-hydroxybenzoate can be replaced with the same amount of potassium sorbate as a fungi control agent, the latter being less expensive than the former. This chemical, however, has not yet been critically evaluated. Toilet tissue for the moisture control was not necessary when the water content was reduced to provide appropriate texture.

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By omitting toilet tissue, however, the larval mortality increased to a great extent. Thus, the water content of the medium in table 1 might be a lower limit for the larval development. Bagasse is also usable for the moisture control where sugar cane is commercially planted. A miner modification of the composition may be needed depending upon the difference of the quality of corn-flour.

This medium was found also applicable to the maintenance of laboratory culture of the melon fly, *Dacus cucurbitae*. Our study on further improvement of the medium suitable for this species is in progress.

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