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**COMPOSITION OF MEDITERRANEAN FRUIT FLY THIRD INSTAR LARVAE
(DIPTERA: TEPHRITIDAE) AND DIET: MATERIAL BALANCE STUDIES
ON AMINO ACIDS, MINERALS, AND NUTRIENT COMPOSITION
IN FRESH AND SPENT MASS REARING DIETS**

Harvey T. Chan, Jr.¹, Harry Ako², Ruth Y. Nino-Duponte²,
James R. Carpenter² and Eric B. Jang¹

¹*Tropical Fruit and Vegetable Research Laboratory, USDA-ARS, P.O. Box 4459, Hilo, HI
96720*

²*College of Tropical Agriculture and Human Resources, University of Hawaii-Manoa,
1800 East-West Road, Henke 106, Honolulu, HI 96822*

The composition of Mediterranean fruit fly third instar larvae, *Ceratitis capitata* (Wiedemann), fresh and spent larval diets were analyzed for proximate composition, amino acids and minerals. Proximate composition of larvae, fresh and spent diets were: 9.5, 6.39, 7.19% crude protein, 78.3, 57.9, % water, 6.8, 1.21, 1.52% fat, 2.2, .54%, 2.13% ash, 3.1, 33.0, 29.3% carbohydrate, respectively. Larval yields of 190g larva/kg fresh diet were encountered. Material balance studies using ash content as an immutable internal standard revealed total diet utilization to be 47.1% with a conversion ratio of $471\text{g}/190\text{g} = 2.48$. Larval composition studies showed considerable uptake in Mg and Ca. Material balance of amino acids showed glutamic acid to be greatest in abundance in the fresh diet, spent diet and insect larvae. Limiting amino acids in the fresh diet appeared to be methionine, tyrosine and cystine. Other amino acids that may be partially limiting were lysine, valine, serine, isoleucine, and histidine. Protein utilization in the diet by both insects and microorganisms was 60%.

Material balance studies of the carbohydrate fraction showed initial carbohydrate content of the fresh diet at 330 g and 155 g in the spent diet. The remaining unutilized 155 g carbohydrate fraction is comprised of 67.6 g fiber. Of the total carbohydrates in the fresh diet 120 g is the added sugar which is readily metabolized microbially or by insect larva.