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Abstract

Food Choice in Adult *Drosophila melanogaster* (Diptera: Drosophildae) in Laboratory Conditions †

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Foraging behavior in animals is based on the interaction among different factors, such as their nutritional requirements, satiety, reproductive state, food composition and presence of various chemicals in the immediate environment. Food preference depends on complex interactions between environmental and physiological cues, and is affected by sensory experience and metabolism during lifespan. In fruit flies, olfaction is considered as one of the main mechanisms used in detection of environmental cues and further behavior adjustment, including food choice. In this work, preference for a particular food in *Drosophila melanogaster* reared on standard cornmeal substrate was investigated. Virgin males and females were tested individually and in the groups, separated by sex, for food choice. Starving flies had the opportunity to choose between standard cornmeal, tomato, banana, carrot and apple substrates, for one hour. Food choice was monitored in transparent plastic boxes (dimensions: 220 × 140 × 90 mm), containing five Petri dishes (30 mm in diameter), filled with five above mentioned substrates. Males and females did not significantly differ in food choice, both when tested individually or in groups. However, flies chose standard cornmeal, tomato and banana substrates significantly more often than carrot and apple substrates. We previously determined that apple substrate had the lowest quality. Since flies live, eat, mate and lay eggs on fruits and vegetables, avoiding low-quality food has certain advantages in fitness components.

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