

## O 47. MICROGREEN FOOD CHOICE IN SUSTAINABILITY

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**ABSTRACT:** Global climate change has affected not only our country but also the whole world. Due to global problems, access to natural agricultural products is decreasing in changing agricultural lands and the environment. In terms of sustainable culinary practices, it is possible to produce microgreens from local seeds through kitchen gardening. The main purpose of the study is to reveal the nutritional preferences of individuals as a behavioural model (using a model organism) in the consumption of microgreens produced using commercial seeds from sustainable culinary practices. In this context, micro sprouts were obtained from commercial cress seeds and added to the *Drosophila melanogaster* diet at a rate of 0-15%, and food preference was determined by the two way chose test.

*Keywords: Sustainable Agriculture, Sustainable Cuisine, Micro Green, Model Living*

### 1. INTRODUCTION

Global climate change has affected not only our country but also the whole world.

Due to global problems, access to natural agricultural products is decreasing in changing agricultural lands and the environment. Thus, negativities in terms of safe production, access, consumption and sustainability of food products are increasing day by day (Türkeş, 2020). Not only the change in food, but also access problems and contamination factors such as various diseases or drug residues related to safe food scare people. Thus, products that cannot be consumed and are of concern go to waste, causing waste generation in terms of sustainability. Unconscious consumption and stockpiling as a result of purchasing more than necessary due to the thought that the food will not be accessible, causes waste. Thus, food waste continues to increase its severity day by day. Although waste is seen in every field, it is known that its size is especially greater in the food and beverage sector.

Bread and greens are among the most wasted foods in the kitchen. In terms of sustainability, it is thought that greens can be offered to consumers through kitchen gardening when necessary. In terms of sustainable culinary practices, it is possible to produce microgreens from local seeds through kitchen gardening. The main purpose of the study is to reveal the nutritional preferences of individuals as a behavioural model (using a model organism) in the consumption of microgreens produced using commercial seeds from sustainable culinary practices. In this context, micro sprouts were obtained from commercial cress seeds and added to the *Drosophila melanogaster* diet at a rate of 0-15%, and food preference was determined by the two way chose test. Because our nutrition changes depending on environmental factors and affects our food preferences as well as our access to food.

The most preferred micro sprouts in the kitchen are: Amaranth, broccoli, peas, yarrow, radish, basil, celery, mustard, coriander, clover, basil, arugula, garlic, watercress, cress (Örnek, 2021). Cress (*Lepidium sativum*), on the other hand, accelerates fat burning in the body, facilitates digestion, is a diuretic, has appetizing properties, and is beneficial for liver and gallbladder diseases (Aydın, 2011). Although it is so useful, cress is also used as a pesticide and herbicide (Özcan and Tongur, 2019). For this reason, its use both as a nutritional model and as a pesticide was interpreted in the study. Based on these opinions, commercial microgreen cress was added to the insect diet in different dose, and food preference were evaluated. Cress is also used as a pesticide and herbicide. Therefore, it was used as a nutritional model in this study and its use as a pesticide was also investigated.

### 2. MATERIALS AND METHODS

The seeds were kept in water for a day in a dark environment, then the water was drained and they were planted in containers containing beeswax and hemp fiber. The sprouts, which were provided with constant air flow, were placed in the dark until the first leaves emerged, and when they started to turn

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micro green, they were placed in the sun. They were watered daily until microgreens emerged. It was harvested by cutting it from the top when it was approximately 10 cm. The harvested length is approximately 6-7 cm.

*D. melanogaster* (W<sup>1118</sup>) culture is fed in the University laboratory with a standard culture medium (SM) at incubator (25 ± 2°C and 60–70% humidity for 12/12 dark/light photo periods, Güneş and Danacıoğlu, 2018). Culture foods are renewed every 3-4 days. Commercially available Cress (*L. sativum*) was added to SM (0-15%). Flies, which were also used as nutritional and consumer behavior models to determine the pesticide effect, were transferred to the prepared foods as in the experimental setup. 5 female / 5 male individuals were taken into two opposite tubes with control and experimental groups in taste experiments and their feeding was monitored for 24 hours (Bayliak et al., 2017).

One-way "Analysis of Variance" (ANOVA) was used to determine the within-group variation, and "LSD Test" was used to determine the significance of the difference between averages.

### 3. RESULTS AND DISCUSSION

It was determined that the seeds became microsprouts (10 cm) in approximately 10-12 days. In this respect, it can be said that there is ease of production in the kitchen. Microsprout to be provided by soilless production; It is thought that it will be an environmentally friendly approach, as it saves space, costs and is produced without the use of drugs.

The insect feeds on cress at a maximum rate of 15%; It has been determined that upper dosages affect individuals (LC<sub>50</sub>) due to its use as an insecticide.

It has been determined that males and females have similar preferences in cress consumption depending on nutrition. In the graph created, it was determined that at most 10 % of the micro sprouts obtained from commercial seeds were preferred compared to the controls. In fact, it was determined that females fed with 10 % commercial food laid an average of 60 eggs on the food surface, while 15 % laid 50 eggs, and 5 % and 1 % laid 10-12 eggs on the food surface. These results prove that micro sprouts obtained from commercial seeds are more liked and preferred by insects for feeding.

These results show that food/food or food and beverages depend on consumer preference, and although it may vary according to local, regional or commercial factors, the consumer's food preference may change, and this change will also be reflected in the ecology. Because in nutrition awareness, it is recommended to increase the consumption of antioxidants added to the diet and plants used in salads such as cress, which are known to benefit many diseases. Many factors such as prejudices in consumption (cleanliness, content, origin, etc.), cost, and the scarcity of manufacturing companies limit their use. However, it should not be forgotten that the effects of some products may vary from organism to organism, dose and content.

With the experimental modeling, it has been determined that micro sprouts are easy to produce, their source and amount of use are important and will affect consumer preference. The less waste that comes from a sustainable kitchen, the more sustainable it will be in terms of environment, cost and production. It is possible that the resulting cress waste will be used by living creatures in nature for more than 15% and will act as a pesticide.

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