ERRATUM AND ADDENDUM

# ERRATUM AND ADDENDUM TO THE BOOK OF ABSTRACTS


| | |
|---|---|
| **Original publication** | Costa, R., Pittia, P., Moussa, M., Cruz, R., & Vieira, M. (Eds.) (2026). *8th International ISEKI-Food Conference – Book of Abstracts: Innovation in Research and Education for the transition to sustainable food systems*. Faro, Portugal, 1–3 June 2026. ISEKI-Food Association, Vienna. ISBN 978-989-9244-58-0. https://doi.org/10.34623/fa6c-d923 |
| **Issued by** | The Editors |
| **Date of issue** | November 2026 |
| **DOI** | https://doi.org/10.34623/fa6c-d923 |


The Editors wish to inform readers of the following correction and addition to the Book of Abstracts. We apologise for any inconvenience.

### 1. Correction of an abstract (page 140)

**Section:** Poster Presentations — Innovative technologies for sustainability
**Abstract:** *Morphological effects of UV-C LED exposure on early stages of Sitophilus spp.*

In the printed version, the author **João Sério** was omitted from the author list and the affiliation numbering of the first author was incomplete. The abstract text, references and affiliations (1–6) are unchanged. The corrected page 140 is reproduced on the next page of this document and replaces the printed page.

| | |
|---|---|
| **Printed (incorrect)** | Inês Sousa[1], Nicole Ferreira[2,4,5], Vanessa Pereira[2,4,5], Graça Barros[6], António Mexia[3], Carla Brites[1,2] |
| **Corrected** | Inês Sousa[1,2,3], João Sério[2,4,5], Nicole Ferreira[2,4,5], Vanessa Pereira[2,4,5], Graça Barros[6], António Mexia[3], Carla Brites[1,2] |

**Author index:** please add the entry *Sério, João* — page 140.

### 2. Addition of an abstract

**Section:** Poster Presentations — Innovative technologies for sustainability
**Abstract:** *Hot air-assisted radio frequency drying as a promising technique to improve drying rate and product quality of yellow mealworm (Tenebrio molitor)*

This abstract is to be inserted at the end of the section, after page 152 (*Process intensification of osmotic membrane distillation via ultrasonication: flux enhancement and quality retention assessment in orange juice*) and before the section *Bio-processing for innovation and sustainability* (page 153). It is reproduced on the last page of this document as page 152a.

**Table of contents:** please add, under *Innovative technologies for sustainability*, the entry *Hot air-assisted radio frequency drying as a promising technique to improve drying rate and product quality of yellow mealworm (Tenebrio molitor)* — page 152a.

**Author index:** please add the entries *Koçak Yanık, Derya*; *Yılmaz, Hande*; *Özbek, Hatice Neval*; *Göğüş, Fahrettin* — page 152a.

POSTER PRESENTATION

# MORPHOLOGICAL EFFECTS OF UV-C LED EXPOSURE ON EARLY STAGES OF SITOPHILUS SPP.

**Inês Sousa[1,2,3], João Sério[2,4,5], Nicole Ferreira[2,4,5], Vanessa Pereira[2,4,5], Graça Barros[6], António Mexia[3], Carla Brites[1,2]**

[1] National Institute for Agricultural and Veterinary Research (INIAV), I.P., Av. da República, Quinta do Marquês, 2780-157 Oeiras, Portugal
[2] GREEN-IT Bioresources for Sustainability, ITQB NOVA, Av. da República, Quinta do Marquês, 2780-157 Oeiras, Portugal
[3] Linking Landscape, Environment, Agriculture and Food Research Center (LEAF), Instituto Superior de Agronomia, Universidade de Lisboa, Tapada da Ajuda, 1349-017 Lisboa, Portugal
[4] iBET – Instituto de Biologia Experimental e Tecnológica, Apartado 12, 2781-901 Oeiras, Portugal
[5] Instituto de Tecnologia Química e Biologia António Xavier, Universidade Nova de Lisboa, Av. da República, 2780-157 Oeiras, Portugal
[6] Instituto Superior de Agronomia, Universidade de Lisboa, Tapada da Ajuda, 1349-017 Lisboa, Portugal

Post-harvest losses in stored rice are largely driven by infestations of *Sitophilus* spp. which cause significant grain damage during storage[1]. Conventional control strategies rely mainly on chemical fumigants and insecticides, raising increasing concerns regarding environmental impact, human health and the development of resistance. A major challenge in pest management is the occurrence of hidden infestations, resulting from oviposition in the field and the subsequent insect development within stored grains[2]. Females of *Sitophilus* adults lay their eggs inside grains, sealing the oviposition hole, where larval and pupal stages develop concealed, making early detection and control difficult[3]. These limitations have encouraged research into sustainable alternatives, such as ultraviolet (UV-C) light[4].

This study investigates the morphological effects of exposure to 280 nm UV-C light-emitting diodes (LEDs) on the larval and pupal stages of *Sitophilus* spp. Samples were exposed for 0 (control group), 1, 5, 7 and 10 minutes, corresponding to UV fluence doses of 46.4, 231.9, 324.7 and 463.8 mJ/cm$^2$, respectively. Following exposure, larvae and pupae were examined using a magnifier to assess structural alterations and capture images to document morphological damage. Compared with controls, all exposed groups exhibited visible morphological injuries indicating a clear effect of UV-C exposure on immature insect stages.

These findings support the development of innovative, non-chemical technologies to reduce post-harvest losses while minimising environmental impact. The integration of UV-based treatments into stored-product protection strategies could provide an effective and eco-friendly alternative to conventional chemical control, aligning with global efforts to promote sustainability and innovation in food storage systems. Our findings indicate that UV-C light represents a promising approach for suppressing the development of *Sitophilus* spp. in stored grains. Further research is recommended to evaluate DNA damage in larvae and pupae, assess potential effects on rice quality and investigate scalability and industrial feasibility of this approach.

## References

1. Mesterházy, Á., Oláh, J. & Popp, J. Losses in the Grain Supply Chain: Causes and Solutions. Sustainability 12, 2342 (2020).
2. Fan, X., Huang, R. & Chen, H. Application of ultraviolet C technology for surface decontamination of fresh produce. Trends Food Sci. Technol. 70, 9–19 (2017).
3. Hagstrum D. W., Subramanyam B. Fundamentals of Stored-Product Entomology [Internet]. AACC International; 2006. 15–28 p. Available from: https://www.sciencedirect.com/science/article/abs/pii/B9781891127502500077
4. Dittgen, C. L. et al. Chemical, physical, and sensory changes in rice subjected to UV-C radiation and its acceptability to rice weevil *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) and humans. J. Stored Prod. Res. 90, 101760 (2021).

POSTER PRESENTATION

# HOT AIR-ASSISTED RADIO FREQUENCY DRYING AS A PROMISING TECHNIQUE TO IMPROVE DRYING RATE AND PRODUCT QUALITY OF YELLOW MEALWORM (TENEBRIO MOLITOR)

**Derya Koçak Yanık**[1], **Hande Yılmaz**[1], **Hatice Neval Özbek**[2], **Fahrettin Göğüş**[2]

[1] Department of Food Engineering, Faculty of Agriculture, Eskişehir Osmangazi University, Eskişehir, Turkey
[2] Department of Food Engineering, Engineering Faculty, University of Gaziantep, Gaziantep, Turkey

The yellow mealworm (*Tenebrio molitor* L.) is regarded as a sustainable food alternative due to its short life cycle, high nutritional value and low environmental impact. The initial step in the handling and utilization of TML involves reducing its moisture content by drying. Radio frequency drying has become an increasingly popular drying technology in the food industry due to its rapid and volumetric heating. This study aimed to enhance the drying efficiency and quality of yellow mealworm by investigating the impact of hot air assisted radio frequency drying technology (HA-RF). Electrode gap (7, 8 and 9 cm), and sample thickness (2, 3 and 4 cm) were the parameters studied to determine the drying characteristics of the Yellow mealworm by HA-RF drying system. The shortest drying time (110 min) was achieved by HARF at 7 cm of electrode gap and 4 cm of sample thickness. The effect of HA-RF on drying behaviour and product quality has been compared with that of dried by conventional hot air (HA) drying at 50 °C. Freeze dried (FD) mealworm was also used as reference sample. HARF drying shortened the drying time by 89% compared to HA drying (990 min). The results showed that the samples dried with RF-HA had less total color differences (ΔE:15) than that of in HA dried samples (ΔE:19). The free fatty acid content of oil extracted from dried samples were 1.56, 2.45, 2.04 % oleic acid for HA-RF, HA and FD, respectively. Moreover oxidation was lowest in HA-RF dried samples than that of dried by HA or FD. It can be concluded that HA-RF drying can be a promising technique to improve drying rate and product quality of yellow mealworm.

**Key words:** Yellow mealworm, *Tenebrio molitor*, Radio frequency drying, oil quality.

**Acknowledgment:** This work was supported by Eskişehir Osmangazi University Scientific Research Projects Coordination Unit (project code, FOA-2025-3434)