

SUSINCHAIN Scientific Publications

Biological contaminants in insects as food and feed

Published in October 2020 by the Wageningen Academic Publishers on *Journal of Insects as Food and Feed, 2021 online – special issue: Advancement of insects as food and feed in a circular economy*, the scientific article on **Biological contaminants in insects as food and feed** is authored by **D. Vandeweyer, J. De Smet, N. Van Looveren** and **L. Van Campenhout**.

D. Vandeweyer and L. Van Campenhout from KU Leuven (SUSINCHAIN consortium member) have been involved in the project since the start up and they lead **WP3 – Insect processing**.

This relevant publication focuses on how edible insects has become increasingly relevant in the food and feed chain and how safety continuously needs to be warranted in order to grow the market. This article also points out the current knowledge and the future challenges on the prevalence of human foodborne pathogens in edible insects.

Among the various bacterial pathogens associated with insects used in food production, the top three are *Staphylococcus aureus*, pathogenic *Clostridium* spp., and pathogenic species from the *Bacillus cereus* group. However, our understanding of other types of biological contaminants like fungi, viruses, protozoa, and prions is still limited. In the context of insects used as feed, there is even less available data on pathogens, although research on the microbiota of *Hermetia illucens* has been increasing in recent years.

In this regard, investigations not only focus on the endogenous microorganisms present in insects but also include inoculation experiments to understand how specific food pathogens behave during rearing. Addressing future challenges requires targeted risk assessments for individual insect species and a greater emphasis on research data related to the microbiological quality of substrates and residues, especially in connection with decontamination treatments. Surprisingly, the house flora of rearing facilities has never been studied before.

To gain a comprehensive understanding of the microbiological quality of the entire insect supply chain, it is essential to implement exhaustive sampling plans and leverage predictive microbiology. Furthermore, standardization of microbiological methods used in research and quality control is necessary. One area that remains relatively unexplored is the unculturable fraction of the insect microbial community and its potential implications for food safety.

Lastly, as the insect production sector continues to grow and expand in capacity and the number of companies, the most significant microbiological challenge lies in upscaling. This expansion will increase the complexity of the sector and, consequently, necessitate more robust monitoring and control measures for biological contaminants.

You can read this article and other scientific publications on the SUSINCHAIN's website, [here](#).

