

OPTIMISED INSECT FRACTIONNATION FOR FOOD AND FEED APPLICATIONS

"Consumer acceptance is one of the biggest challenge for commercialization of insects as a food source for human consumption."

Lucian Miron, Process & Product Developer Scientist at ZETADEC

 **42%** of Black Soldier Fly (BSF) larvae are proteins containing all essential amino acids required



HOW TO RETRIEVE THE MOST SUITABLE INSECT'S PROTEIN FOR FOOD AND FEED APPLICATIONS?

> WHAT?

The extraction process has an impact on the proteins's nutritional values and functionalities such as solubility, emulsification, foaming, gelation, viscosity or water and fat-binding capacity.

Therefore, ZETADEC carried out several experimentations at different pH values, solvent/material ratio and extraction time in order to find the most suitable protocol for food and feed end-applications.

The protein fraction extracted has been incorporated in food and feed products such as meat analogues for human consumption, pet food or aquafeed.

Current results show that a high proportion of traditional proteins can be substituted by black soldier fly proteins without impacting the texture and taste of the end-products!

> HOW?

The experimentation showed that extraction at an alkaline pH of 12 is a suitable method resulting in a higher protein quality.

After purification by ultrafiltration, a purity of 87.6 ± 2.4 % is achieved, and a good fat-binding capacity is obtained. Also, the essential amino acid index (EAAI) of the protein extracted is higher than of many other proteins from different insect species or plant proteins, with an index of 1.72, in the same range as soybean.

> WHEN?

Despite the fact that using BSF protein sources presents major environmental advantages (more **here**), the uptake of this sustainable alternative faces legislative hurdle, with the European legislation on processed agricultural products (PAPs) still forbidding its commercialisation.

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Want to learn more about insect fractionation?

Read the publication **Exploring the chemical safety of fly larvae as a source for animal feed.**

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