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CHEMICAL FOOD SAFETY ISSUES OF BLACK SOLDIER FLY (HER-METIA ILLUCENS) LARVAE REARED ON RESIDUAL STREAMS

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Black soldier fly larvae (BSF, Hermetia illucens) can convert low quality waste streams into protein-rich ingredients for food and feed. Residual or waste streams could be a source of valuable nutrients, however, they could be contaminated with chemical residues. For instance, manure or slaughterhouse waste can contain antibiotics and antiparasitic drugs and residual streams from agriculture could contain pesticides residues or heavy metals. Under current European law, it is not allowed to use waste streams that contain animal products or manure for insect rearing, when the insect will be used as food and feed. Therefore, in line with the ambition for sustainable insect rearing on these type of waste streams, it is needed to complete the necessary food and feed safety data.

Experiments were held in which contaminants were spiked to control substrate, and BSF larvae were reared on the contaminated substrates. Natural contaminated substrates and controls were used as well. Investigated contaminants were those that could be present in waste and residual streams. Studied residual streams were catering waste, liquid pig manure mixed with silage grass, solid pig manure, mushroom feet, slaughterhouse sludge and organic wet fraction of household waste. Insects were reared in small scale experiments (50 gram substrate) and larger scale experiment (10 kg substrate). Growth and survival of the larvae, as well as the presence of residues (such as heavy metals, veterinary drugs, pesticides and acrylamide) in the larvae and frass were determined.

When rearing BSF larvae on waste or residual streams, possible chemical contamination should be controlled to ensure optimal insect growth and safety of the insect products.

Keywords: insects, safety, biowaste, hazards