Biosuck

The project BioSuck aims at establishing a decision support system (DSS) that forces a redesign of the food processing industry with regard to an optimized waste collection system. This shall work via vacuum lines and subsequent processing of concentrated waste into bioenergy or recycling of nutrients. The redesign will save a significant quantity of water, because it requires considerably less water for cleaning purposes when waste is sucked off. This will accordingly decrease the disposed wastewater and thus reduce costs. The concentrated waste (high organic load fraction) can further be used for a self supply with nutrients (fertilizer, food or feeding purposes) and/or bioenergy generated by subsequent processes (biogas, bioethanol, hydrothermal carbonization).

The DSS will need sufficient input data to enhance the combination of solutions for the opitmal redesign within the different sectors of the food processing industry (beverage, dairy, meat, seafood…). Therefore, various waste streams will be characterized by conventional and innovative spectral measurements to find new efficient solutions for waste categorization (e.g. bioactive compounds). Additionally, a summary of waste compositions will be made by literature research. The resulting database will supplementary contain the kind of waste accumulation and relevant characteristics of the food sector where it accumulates (possibility for nutrient recycling, etc.). A sustainability analysis of the technologies and processes will be carried out by an LCA and an environmental impact assessment. A conducted case study will reveal real life data to integrate this data into the DSS. Therefore a small test pilot system for concentrating waste via vacuum lines will be designed and built.

The project outcome will be an MS-Excel® based decision support system with a complementary guideline for the redesign of the food processing industry and for closing loops regarding energy and nutrient supply..