

Microbiological Characterisation of Food Residuals Amended Animal Feed Using a Solar Drying Process

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Abstract

The study was implemented in the framework of the EU LIFE+ project “Food for Feed: An Innovative Process for Transforming Hotels’ Food Waste into Animal Feed - LIFE-F4F”. The project aims to evaluate, through the construction and operation of a pilot plant, a simple, innovative, and low-emission technology based on the solar drying process, that allows the safe transformation of source separated food residues, mainly from hotels (and generally from the hospitality and food service sectors), into animal feed. The study investigates the microbiological profile of food waste amended animal feed using the novel solar drying process, with significant potential benefits of diverting food waste for animal feed in Greece. The results of the microbiological analyses from the routine sampling of hotels’ food waste are presented. The food waste used in this study are the waste or residues generated by hotels in the general area of Heraklion and Hersonissos (Crete, Greece). This waste contained some impurities, such as paper and plastic, and manual separation was used for pre-treatment of the food waste. The food waste was mainly composed of post-consumer plate scrapings containing uneaten food, pre-consumer unserved food and kitchen trimmings. The raw waste was separated from the coarse contaminants, its particle size was reduced and the mixture was homogenized, before being thermally dried using a pilot solar drying system. Overall, the microbiological load of the collected raw food waste appears to be very low and the results are compared with similar findings to other studies. The absence of the pathogenic bacteria *Listeria monocytogenes* and *Salmonella spp.* should be emphasized, probably as a result of HACCP application in the participating hotels’ kitchen.

Keywords: food waste, animal feed, bacteria; concentration reduction, solar drying

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