

Session Cross-cutting: April 13th 11.00 hrs

5s4b: : Waste reduction and novel resources for sustainable production of safe food or feed

POSSIBLE STRATEGIES TO COPE WITH ENHANCED CONTAMINANT LEVELS IN SACCHARINA LATTISIMA IN FOOD AND FEED APPLICATIONS

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In the past years Wageningen Food Safety Research (WFSR) has been performing several research projects on the presence of possible harmful substances in seaweed cultivated in the Dutch estuaries and coastal waters. Besides a general screening on some substances like natural toxins, pesticides, radioactivity, dioxins and PAH's a more detailed survey has been performed on the heavy metals and iodine concentrations.

Over time, results have shown that the contaminant levels of heavy metals (like arsenic, cadmium, lead and mercury) and iodine not only vary in time, but also vary between the different cultivation locations and even within the same seaweed cultivation site. Following these results, literature research was performed to extend the knowledge on seaweed growth and thereby provide insight into the uptake of these undesirable substances and its relation to the nutrient levels in the environment.

The current theory for arsenic, one of the most problematic contaminants, are planned to be validated in controlled experiments, where the growth, contaminant sequestration and the nutrient levels are monitored during the whole growth season. The aim of the of these experiments is to determine the conditions for optimal growth and for minimal sequestration of contaminants.

WFSR is also working on several projects to monitor and control food safety in the production chain from fresh seaweed material to consumer end products. These projects will provide insight in the critical control points in the seaweed production chain and tools for monitoring and reduction of contaminants, either in fresh or processed seaweed products.

The final option to prevent seaweed with enhanced heavy metal concentrations from entering the food chain is to develop a control system, that can measure heavy metal concentrations quickly and reliably. A promising technique is to make use of X-ray Fluorescence (XRF) as control system in the seaweed supply chain, since it can process large numbers of samples. At WFSR, experiments are performed at the moment to develop an experimental set-up that could be introduced in the industry.

The projects described are performed in cooperation with WUR departments and research partners in the offshore industry, fisheries, breeding and food production. With this WUR supports the future production of safe seaweed production for food and feed.

Keywords: Saccharina Latissima, contaminants, nutrients