

Agriculture & Food Chemistry

BIOTECHNOLOGY FOR INCREASED UTILIZATION OF MARINE REST RAW MATERIALS

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Significant amounts of rest raw materials are generated throughout the value chain of seafood processing. Although effort has been made on development of technology to utilize these raw materials, there are still huge amount that goes to waste. These include fractions with potential as e.g. food, feed and pharmaceuticals and are generally rich in functional proteins, lipids and carbohydrates. As an example; if whitefish fillet is the main product, as much as 50% of the biomass in the catch is regarded as rest raw materials or waste. Also filleting of fatty species such as pelagic fish and salmonoids generate valuable cut-offs and viscera. So, while the marine fatty acids are in short supply worldwide, significant lipid-rich fractions goes to waste throughout the value chain when producing seafood. Upgrading this biomass for the growing world population and aquaculture is a key area in the circular economy and optimal utilization of the

global marine resources. Several factors play a role in the circular economy and gaining the total picture of reducing food waste. I will primarily focus my talk on the biotechnology aspects of utilization and demonstrate how these complex raw materials changes fast due to its high susceptibility to biochemical degradations. Biotechnological processes might trigger the potential of higher utilization of the biomass. I will visualize technology from raw materials into bioactive components such as protein and peptide component, lipid and lipid components and also carbohydrate rich components for example from utilization of macro algae. Furthermore, I will include the sensory aspects of the rest raw materials as marine ingredients, documented health effects and demonstrate analytical techniques to understand the value of the products.

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