Industrial feasibility of the production of gluten-free barley malt beers on a day-to-day basis using existing technologies

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Short CV

Anneleen Decloedt graduated in 2011 as M. Sc. Biochemistry and Biotechnology, Ghent University. In 2014 she was the project manager of the Beer4Dreams team that won the first and public price at the Belgian Ecotrophelia competition and the fourth price at the European competition. She successfully defended her PhD in public health and food safety at the Laboratory of Chemical Analysis, Ghent University in 2015. Since January 2015 she has been working as a research fellow at the Laboratory of Biochemistry and Brewing of Ghent University and University College Ghent, regularly presenting her work in scientific papers and at international congresses.

Abstract

The gluten-free food market is growing rapidly due to the rise in consumers suffering from a gluten sensitivity or allergy, but also by the assumption that a gluten-free diet is part of a healthy lifestyle. Therefore, commercially, it is very beneficial for brewers to be able to produce gluten-free barley malt beers on a day-to-day basis. Breweries that use different technologies and process aids (e.g. filtration types, filter aids, enzymes used) were monitored with the Ridascreen Gliadin sandwich (R7001) and competitive ELISA (R7021), respectively quantifying gluten proteins and peptides. 92% of the Belgian beers tested (n=153) had a gluten content below the gluten-free 20 ppm threshold (2009/41/EC). However, lowering the gluten peptide content turned out to be more challenging, but could still be achieved by combining technologies (32% of the beers). Additionally, different issues related to the process adaptations have been addressed as well (e.g. foam stability and added costs).