

CONTROL OF CORN FLOUR FOR BEER PRODUCTION BASED ON PESTICIDE FINDINGS AND RADIOACTIVITY ANALYSIS

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Abstract

The raw materials needed to produce beer includes: water, malt, viburnum, and yeast. Special beers, such as dark beer, India Pale Ales (IPA), and non-alcoholic beers include germ-free corn flour. Our research aimed to analyze the presence of the pesticide and radioactivity residues in the corn flour for producing dark beer with alcohol 5.2% v/v in the factory "Birra Peja", Peja, Kosovo.

Hence, this analysis was done on 155 components of pesticide and radioactivity residues in germ-free corn flour imported from Vojvodina, Serbia. To identify the pesticide residues, samples were prepared for liquid chromatography and the analytical analysis of samples was done in gas chromatography according to the DIN EN 15662. Then, radionuclides with high purity germanium (HPGe) detector was analyzed for quantities of radioactivity residues as per method 0204 PY 5.4.06. Then, to confirm the results of these analyses of 155 components of pesticide and radioactivity residues in germ-free corn flour through the two already-mentioned methods, the dark beer produced from this corn flour was analyzed according to European Brewery Convention (EBC) and MEBAK (in German: Mitteleuropäische Brautechnische Analysenkommission) standards and instructions.

The results of both analyses show that the residues in the corn flour are within the allowed limits of DIN EN 15662 for pesticide residue and 0204 PY 5.4.06 for radioactivity residue. Then, the beer analysis results confirmed the pesticide and radioactivity residue findings, which were also within EBC and MEBAK methods and standards.

We can conclude that the corn flour imported from Vojvodina, Serbia, meets the criteria as a safe raw material for producing dark beer with alcohol 5.2% v/v. Furthermore, the beer does not harm consumers' health and is of acceptable quality.

Key words: Alcohol-free beer, Dark beer, Gamma - spectrometric analysis, Ipa beer.