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Recommendations on food and packaging safety in the context of the COVID-19 pandemic

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Summary

COVID-19 is a respiratory disease with a route of invasion through the respiratory tract but not through the gastrointestinal tract. Nevertheless, people are worried and concerned about food safety. This review briefly clarifies the epidemiology and pathobiological mechanism of SARS-CoV-2 and its potential for transmission of infections to households through food, food packaging, food processing surfaces. Some prevention rules are recommended.

Higher levels of hygiene should be applied in retail and ready-to-eat food stores and in everyone's personal home. In addition, all measures of physical distancing everywhere in public life must be observed, as must the rules of responsible social behavior.

Keywords: SARS-CoV-2, food packaging, recommendations for food safety and packaging, hygiene measures

Need for introduction of monitoring on foodborne diseases caused by *Vibrio parahaemolyticus*

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Abstract

The halophilic vibrios are naturally inhabitants of seawater. They often are isolated from bivalve mollusks in different geographical regions. Some of those vibrios can be pathogens and *Vibrio parahaemolyticus* have leading place among them. It multiplies very intensively under optimal conditions, so that foods contaminated with small amounts and stored at room temperature can rapidly reached infectious dose of 10^5 – 10^7 CFU/g. In this regard, it can be assumed that climate changes are a prerequisite for the emergence of new ecological niche. In addition, there are changes in number of factors, affecting the spread of *Vibrio parahaemolyticus* in food and occurrence of foodborne diseases. In recent years its presence become increasing even in the cold northern seas. These facts determine the need of priority EU policy on the place and guidelines for future monitoring on *Vibrio* spp. in bivalve molluscs. There is a need to introduce of clear criteria for quantitative and qualitative assessment of microbiological risk throughout the food chain – from the production of bivalve molluscs to the consumers in EU. The development and application of science-based criteria for microbiological monitoring will optimize the risk assessment for *Vibrio parahaemolyticus* and its role in the epidemiology of foodborne diseases over the world.

Keywords: *V. parahaemolyticus*, bivalve molluscs, monitoring, foodborne diseases.

Issue 5/2020

Beer with higher antioxidant capacity by adding herbs - peppermint and lemon balm (*Mentha × piperita* and *Melissa officinalis*)

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Abstract

Fermentation experiments in volume 0,5 l with two brewing yeast strains (56 *S. carlsbergensis* [Weihenstephan] and 80 *S. cerevisiae* [bottom-fermenting]) and wort with added herbs (peppermint and lemon balm) extract in concentration 3 g/l were carried out. The goal of the experiments was to produce beer with higher antioxidant potential.

Herbs extract presence in wort did not disturb yeast propagation. In the presence of herbs, there were better wort extract fermentation, higher alcohol content, better -amino acids nitrogen utilization and slightly decreasing in bitterness (in comparison with control variants). Antioxidant capacity of 100% barley malt-containing beers with added herbs extract (DPPH method) showed 49-56% increasing in comparison with control beers, which contained only malted barley. Herbs extract adding inflicted higher release of polyphenols in final beer but it didn't contribute significantly for higher flavonoids content. There was considerable increasing (more than 40%) in anthocyanins amount of herbs-containing beer in comparison with control variants for both strains.

The resulting beers were bright, with clear taste (slightly acid) and strong lemon balm flavour. Beers produced by strain 80 offered enhanced bitterness and had better tasting evaluation than the ones with strain 56.

Keywords: antioxidant activity, polyphenols, anthocyanins, flavonoids, fermentation, brewing yeasts, peppermint, lemon balm

Regulatory requirements for the use of protected names of agricultural products and foods, marketed on the EU market

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Abstract

A detailed review on the regulatory requirements for the use of the protected designations of agricultural products and foods, marketed in Bulgaria and on the EU market has been made. The requirements of the designations of the origin and geographical indications, as well as of traditional specialties, are examined in detail. The procedure for preparation and submission of requests to the EU for entry in the European registers of products with protected names of origin, protected geographical indications and in the register of foods of traditional specific character is described. The scope of protection and the relevant prohibitions on the use of protected names have been interpreted. The established EU symbols for protected designations of registered agricultural products and foodstuffs are presented. Special attention is paid to monitoring of compliance by approved private controllers and official controls, carried out by the competent authorities in accordance with European and national legislation. There are also brief annotations of registered protected names of 8 types of Bulgarian products and applications for future registration of some new products with protected designations.

Keywords: protected designations, traditional technologies, European and national legislation.

Analysis of synthetic sweeteners in beverages

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Abstract:

The use of synthetic sweeteners aims to improve the sweetness of the products and to replace the use of refined sugar in the production of products for people on a special diet. The use of synthetic sweeteners in soft drinks is widespread. The purpose of this work is to determine the content of synthetic sweeteners in some beverages offered on the market and to check the compliance of their content with European legislation. The analytical method used is HPLC - UV. The obtained results show that the levels of acesulfame K, saccharin and aspartame in the analyzed beverages do not exceed the regulated values.

Keywords: Synthetic sweeteners, Soft drinks, HPLC - UV method, European legislation

Issue 9/2020

Influence of alcoholic fermentation conditions on the synthesis of higher alcohols from *Saccharomyces cerevisiae* strains in Cabernet Sauvignon wines

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Abstract

The ability of two strains *Saccharomyces cerevisiae* (*Bordeaux* and *8-11*) to produce higher alcohols under different conditions of alcoholic fermentation of Cabernet sauvignon grape pulp was studied. The influence of temperature (20°C, 24°C, 28°C) and the percentage of yeast culture (2%, 3%, 4%) on the total amount of higher alcohols synthesized during the process was monitored. The studied strains produced the most common higher alcohols at a temperature of 24°. As the amount of yeast culture increased, so did their content. In both strains the concentration of higher alcohols increased significantly during the rapid fermentation up to 10 days, after which in the period of quiet and malolactic fermentation their quantity changed insignificantly. 2-butanol, propanol, isobutanol, butanol, isopentanol, pentanol, hexanol, heptanol and 2-phenylethanol were identified in the experimental wines by gas chromatographic analysis. At 24°C the strains synthesized the greatest amount of all identified higher alcohols with the exception of 2-butanol and butanol (*Bordeaux*) and pentanol (*8-11*). In the obtained wines fermented with the two strains, the amount of total higher alcohols was similar. There was no relationship between their total quantity and the tasting evaluation of the wines.

Key words: *Saccharomyces cerevisiae*, alcoholic fermentation, wine, higher alcohols.