

Joint Event on
International Conference on **FOOD NUTRITION AND MICROBIOLOGY**

November 20-21, 2023 | Webinar

Potential of autochthon starter in fermented milk manufacturing isolated from bouhezza traditional cheese

Aissaoui Zitoun Ouarda

Frères Mentouri University, Algeria

Introduction: The exceptional traditional cheese-making of the Algerian Bouhezza cheese ensures the development of a specific microflora that is resistant to both high levels of acidity and salt. In fact, Bouhezza is made with raw milk and a treated goat or sheepskin bag for one to several months manufacturing-ripening. Lactic acid bacteria are the major group of microorganisms activated during cheese production and maturing. In Bouhezza cheese, a mixture of NSLAB was compound with different species as *Lactococcus lactis*, *Lactobacillus plant arum* and *Leuconostoc cremoris*/*Ln. mesenteroides* species.

Methods: This presentation highlights technological and antibacterial potential of some isolated strains from Bouhezza which were explored in autochthon starter formulation for fermented milk manufacturing. Based on a bank of over 50 isolated and purified lactic strains, a technological potential study was carried out to select ferments. Test concerned acidification.

Results: Results showed that 14 strains belonging to the *Lactobacillus*, *Leuconostocs* and *Pediococcus* genera have the technological properties required for coagulating, acidifying and flavoring milk products. After studying the interactions between strains, a selection of two mixed ferments (MF1 and MF2) were tested in manufacturing fermented milks (Lben and yoghurt type). The two starters showed an acidification and aromatic potential at different temperatures with a good sensorial quality of the fermented products.

Discussion: Results suggest that both starter (MF1 and MF2) are interest and could be considered as new autochthone starter encouraging their use in ripened cheese manufacturing.

Biography

Aissaoui Zitoun Ouarda is a dedicated researcher at the Food Engineering Laboratory (GENIAAL) situated at Frères Mentouri University, Constantine 1 (U.C.1) in Algeria. Her work focuses on innovative approaches in food engineering. With expertise in various aspects of food Technology, Ouarda contributes significantly to advancing the field. She holds a prominent position in the academic community, fostering excellence in food science.

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Calotropain as a coagulant enzyme in fresh cheese-making with dromedary, cow, goat and ewe milk: Physicochemical, sensory properties and microstructure characterization

F. A. Benyahia

The Hashemite University, Jordan

The aim of this study was to determine the physicochemical and sensory characteristics of traditional fresh cheese "peulh type". It was made from cow, goat, ewe or dromedary milk varieties. The coagulation was achieved by using calotropain, a coagulant enzyme contained in *Calotropis procera* latex plant, of Asclepiadaceae family. While ewe's milk had higher chemical constituent values, dry extract of 18.56%, and fat content of 52 g / L, dromedary milk, was proved to have chemical contents, which were still low compared to other milk varieties. Its total dry extract was 10.45% and its fat content was 23 g / L. The four fresh cheese varieties from the milk samples resulting from calotropain coagulation had a pH ranging from 6.9 to 7.05 and a lactic acidity between 0.1 and 0.2 g / 100 g. The ewe's fresh cheese had the highest values of total dry extract of 47.12% and a fat content of 2.63%. However, dromedary fresh cheese had the lowest values of total dry matter of 24.23% and a fat content of 0.11%. The fresh cheese yields were variable between samples. The highest yield was determined for the ewe's fresh cheese of 30.7 %, and the lowest one was for the cow's one of 14.28 %. The sensory analysis showed the particularity of fresh cheese obtained from dromedary milk, where a good white color, spreadable, and smooth, creamy and soft texture are noted. On the other hand, the other fresh cheese varieties from cow, goat and ewe milk had less white color, a firm texture, were moderately rough, non-creamy, slightly spreadable with a rather strong lactic odor. Despite the fact that ewe's milk was the richest in dry extract and fat, compared to other types of milks, the dromedary's fresh cheese was, however, the most appreciated sensory. In addition, the confocal laser scanning microscopy (CLSM) had characterized the four, cow, ewe, goat and dromedary fresh cheeses microstructures. Indeed, sizes of their casein micelles and fat globules as well as their mode of aggregation and coalescence respectively, noted an apparent and a visible dissimilarity.

Biography

Férial Aziza Benyahia is a distinguished researcher at the Food Engineering Laboratory (GENIAAL) within Frères Mentouri University, Constantine 1 (U.C.1), and Algeria. Her expertise lies in the realm of food engineering, where she pioneers innovative approaches. With a strong academic background and a commitment to advancing food science, Benyahia plays a vital role in shaping the field's future. Her contributions are invaluable to the scientific community.

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Role of dietitians in promoting sustainable diets for obesity and co-morbidities

Nina Saund

Specialist Dietitian, United Kingdom

In the face of escalating obesity rates and a reliance on processed fast foods, exploring sustainable diets gains urgency. This presentation examines the connection between sustainable diets, obesity, and associated co-morbidities while emphasizing the vital role of dietitians in steering individuals toward healthier and more sustainable eating patterns.

Introduction: Rising global obesity and consumption of processed foods contribute to health issues like cardiovascular disease, diabetes, and cancer. This presentation highlights how sustainable diets can address health concerns and mitigate the environmental impact of current eating habits.

Key Points: Impact of Non-Sustainable Diets: Diets high in processed, energy-dense foods lacking essential nutrients lead to overconsumption, poor gut health, adverse health effects, financial strain, and reduced quality of life.

Linking Sustainability and Health: Studies indicate that sustainable diets are linked to positive biomarker changes, suggesting that emphasizing nutrient-rich plant foods and reducing processed items can yield better health outcomes.

Role of Dietitians: Dietitians guide sustainable diets by offering expert advice, education, and support. Their expertise facilitates transitions to sustainable eating, involving goals, education on local produce, cooking skills, and mindful eating.

Psychological Aspects: Dietitians address psychological factors to foster lasting lifestyle changes, acknowledging cultural sensitivity and individual boundaries.

Beyond Medication: Dietitians bridge medical interventions and sustainable diets, considering patients' lifestyles and preferences, and empowering them to set achievable goals.

Audience and Takeaway: This presentation targets health professionals and the food industry, emphasizing that embracing sustainable diets, guided by dietitians, improves health outcomes and reduces reliance on processed foods.

Conclusion: Sustainable diets are crucial for health, environment, and society. Dietitians play a pivotal role in guiding dietary changes, benefiting personal health and the global landscape.

Biography

Nina Saund has had the privilege of working collaboratively within a team focused on making a meaningful impact in the healthcare sector. Before her journey with the NHS, she delved into the world of clinical research, specifically in human drug trials, during her time at the University of Surrey. It was during this period that she had the opportunity to contribute to projects that were shared in collaboration with none other than Harvard University. Her journey has led her to specialize in a diverse range of areas, including oncology, gut health, weight management, food allergies, fussy eating, learning disabilities, and mental health. What truly ignites my passion is taking a holistic approach to healthcare, especially in a community setting. She has found immense satisfaction in devising comprehensive plans that cater to the unique needs of each patient.

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Nutritional qualities of small fishes with special reference to their proximate composition: A review

Sharmistha Chakraborty

Science College Kokrajhar, India

The nutritional awareness is an alarming issue of the present centuries. Modern researchers strongly empathize on nutrition and human health. Consumption of imbalance nutrients is globally responsible for the malnutrition, a curse for the people who belongs to below poverty lane. More than one billion of people around the world include fish food in their regular diet. Fish is a vital source of protein and many other essential nutrients for the human health. Many researches had already been done on the nutritional contents of fish species with respect to their proximate composition which are commercially valued and most admired by the urban people. Many of the developing countries like India are resided by poor villagers who gladly consume the small fish species which are of low cost and easily available in the water lands. Today the nutritional excellence of the food fishes is of greater interest to the researchers in the field of biochemistry. Advanced researches on the biochemical constituents of different fishes are signified and essential to the human health as well as medicinal practitioners to formulate newer medicines for the prevention of many life risk diseases of the community. This review paper is an attempt to review the current scientific literatures on the substantial difference in proximate composition of different fish species across the globe. The significance of such study on proximate composition of fish along with challenges and future perspectives are also highlighted.

Biography

Sharmistha Chakraborty has completed her Ph.D. in the area of Biochemistry. Her interested research topics include food and nutrition, biochemical compositions of fishes etc. Due to the lack of infrastructures in concerned area many works have not been done yet. She is in search of scientific works in the field of Food and Nutrition.

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Survey, mastitis California test implementation and microbiological composition of raw camle milk assessment in tamanrasset region (Southern Algeria)

Habiba Drici

University of Tamanghasset, Southern Algeria

To facilitate the early diagnosis of subclinical mastitis in camel herds within the Tamanrasset region of Southern Algeria, we conducted a study to evaluate the effectiveness of the Camel Mastitis Test (CMT) for she-camel udder health assessment. On one hand, survey investigation was carried out by addressing tow questionnaires kinds. The first one was designed exclusively for camel breeders and focused on the breeders' level knowledge regarding subclinical mastitis in she-camels udder and raw camel milk daily quantity production. The second questionnaire specifically aimed at veterinarians to gather essential information including, the number of veterinarians currently in service, Whether veterinarians utilize the MCT test for detecting subclinical mastitis and the existence or no of a national program for the diagnosis and treatment of subclinical mastitis. On other hand, twelve raw camel milk samples were collected from peri-urban camel farms in the Tamanasset region and tested using the MCT, a chemical product similar to the well-known "California Mastitis Test" (also known as the Teepol test). Additionally, we employed culture-dependent methods to assess the Revivable Aerobic Mesophilic Microflora (RAMF) using the SP-SDS micro-titration procedure, as well as to evaluate the microbiological quality of the raw camel milk samples. Furthermore, we extracted and quantified DNA from the raw camel milk as part of the initial step of a culture-independent method. Among the twelve tested raw camel milk samples, the MCT results indicated positive reactions, with gel formation and scores of 1 observed in samples S3 and S7, while the remaining samples did not show any gel formation. In terms of physiochemical analysis, the pH of the milk samples ranged from 6.07 to 6.75, while the temperature varied between 16.6°C and 28.2°C. Microbiological analysis revealed a high bacterial count, ranging from 3.5 log₉ CFU/ml to 7.4 log₉ CFU/ml. Pathogenic bacteria, such as Escherichia coli, Salmonella Enteritidis, Shigella dysenteriae, and Shigella flexneri were detected on appropriate culture media. Additionally, opportunistic pathogenic bacteria, including Escherichia coli and Proteus vulgaris, which are known as commensal species in the human digestive tract, were also found. In second group raw camel milk samples (S8, S9, S10, S11, and S12), there was variability in DNA concentration, ranging from 35µg/ml to 69.5µg/ml. Notably, a significant difference in DNA concentration was observed between samples S10 and S12, which exhibited a high microbial load of over 11.48 log₉ CFU/ml suggesting a significant microbial diversity among the analyzed raw camel milk samples.

Biography

Habiba DRICI -Born in 1970 in North-East of Algeria (hometown "Annaba")- PhD in Microbiology - Teacher-Researcher at University of Oran, West Algeria (2001-2011) then, at the University of Tamanghasset (CUTAM), Great South of Algeria since October 2011. Director of research laboratory of Sciences and Environment at University of Tamanghasset. Study and valorization of the South Algeria bioresources to improve food, feed and water quality. Priority of my research is dromedary field in Algeria, through safety risks assessment study by microbiological and molecular approach of raw camel milk, which is mainly consumed by nomad's people and for whom camel milk is the survival source in the desert.

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Traditional date vinegar: Microbiota, chemical characterization, and an insight into starter culture production: An original Study

Zahra S. Al-Kharousi
Sultan Qaboos University, Oman

Statement of the problem: The indigenous microbiota, quality, and safety of traditional date vinegar is not well presented in the literature and its production takes a long time following the traditional methods. Understanding date vinegar microbiota is important for the industrial development of this product.

Methodology & amp; theoretical orientation: Microbiological and chemical analyses were done for forty home-made samples (HMS) and laboratory-made samples (LMS) of date vinegar. To evaluate the hygienic quality, *E. coli*, coliforms, and Enterobacteriaceae were enumerated. Acetic acid, ethanol, and methanol contents were analysed by headspace gas chromatography. Moreover, a starter culture was formulated from the isolated acetic acid bacteria (AAB) and yeast and tested for their efficiency to produce date vinegar in a shorter time.

Findings/Results: Coliforms and Enterobacteriaceae occurred in 75 and 67% of HMS, respectively, and in 3.6% (both groups) of LMS while *E. coli* was not detected in any sample. The LMS had better hygienic quality and supported better growth of yeasts and AAB than the HMS. Thirty-five yeasts belonged to six genera and 55 acetic acid bacteria (AAB) to five *Gluconobacter* species (identified by a polymerase chain reaction). The percentage of acetic acid was less than the international recommended standard levels and ranged from 0.09 to 3.38%, and 0.03 to 3.46% in HMS, and LMS, respectively. The content of ethanol ranged from 0.14 to 2.17%, and 0.07 to 7.81% in HMS, and LMS, respectively. Methanol was less in LMS ($\leq 0.06\%$) than in HMS ($\leq 0.17\%$) and its level in some samples exceeded the standard levels. The highest concentrations of acetic acid were 4.67% attained with the starter culture (DC3, DC4, BC1 and Y9) and 3.62% achieved with starter culture (A5, A7, A32, BC1, DC3, DC4, and Y9) in the fourth day of the fermentation time.

Conclusion: Utilizing the traditional method for producing date vinegar does not assure the production of true and safe vinegar that contains the specified levels of acetic acid and ethanol. It may also contain unacceptable levels of the toxic chemical methanol. The highest amount of acetic acid (4.67%) produced after 4 days' fermentation is acceptable and can provide the basis for producing a commercial product (starter culture) ready for use by both industry and local producers that ensures production of a good-quality date vinegar in an easier, faster, safer, and efficient way. It also may provide a beneficial usage for the low quality and the surplus dates.

Biography

Zahra S. Al-Kharousi is an Assistant Professor in the Department of Food Science and Nutrition in the College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman. Her research fields of interest include food safety and quality, antibiotic resistance, antimicrobial activity of medicinal plants, and antimicrobial peptides. She published 12 scientific papers in peer-reviewed international scientific journals and contributed too many conferences.

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Therapeutic ketosis and the broad field of applications for the ketogenic diet: Ketone ester applications & clinical updates

Raffaele Pilla

St. John of God Hospital, Italy

It has been recently shown that nutritional ketosis is effective against seizure disorders and various acute/chronic neurological disorders. Physiologically, glucose is the primary metabolic fuel for cells. However, many neurodegenerative disorders have been associated with impaired glucose transport/metabolism and with mitochondrial dysfunction, such as Alzheimer's/Parkinson's disease, general seizure disorders, and traumatic brain injury. Ketone bodies and tricarboxylic acid cycle intermediates represent alternative fuels for the brain and can bypass the rate-limiting steps associated with impaired neuronal glucose metabolism. Therefore, therapeutic ketosis can be considered as a metabolic therapy by providing alternative energy substrates. It has been estimated that the brain derives over 60% of its total energy from ketones when glucose availability is limited. In fact, after prolonged periods of fasting or ketogenic diet (KD), the body utilizes energy obtained from free fatty acids (FFAs) released from adipose tissue. Because the brain is unable to derive significant energy from FFAs, hepatic ketogenesis converts FFAs into ketone bodies-hydroxybutyrate (BHB) and acetoacetate (AcAc)-while a percentage of AcAc spontaneously decarboxylates to acetone. Large quantities of ketone bodies accumulate in the blood through this mechanism. This represents a state of normal physiological ketosis and can be therapeutic. Ketone bodies are transported across the blood-brain barrier by monocarboxylic acid transporters to fuel brain function. Starvation or nutritional ketosis is an essential survival mechanism that ensures metabolic flexibility during prolonged fasting or lack of carbohydrate ingestion. Therapeutic ketosis leads to metabolic adaptations that may improve brain metabolism, restore mitochondrial ATP production, decrease reactive oxygen species production, reduce inflammation, and increase neurotrophic factors' function. It has been shown that KD mimics the effects of fasting and the lack of glucose/insulin signaling, promoting a metabolic shift towards fatty acid utilization. In this work, the author reports a number of successful case reports treated through metabolic ketosis.

Biography

Raffaele Pilla, Pharm.D., Ph.D., Doctor Europaeus, received his Master's degree in Pharmacy at G. d'Annunzio University in Chieti-Pescara, Italy in 2005, where he also served internships at the Cell Physiology Laboratory and Molecular Biology Laboratory. Prior, he was an Erasmus Student at Faculté de Pharmacie de Reims in Reims, France. He received his Doctor Europaeus in 2010 from Pitié-Salpêtrière Institute in Paris, France. Also in 2010, he received his Ph.D. in Biochemistry, Physiology, and Pathology of Muscle at G. d'Annunzio University in Chieti-Pescara, Italy.

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How retort packing can contribute to alleviate the threat of global food crisis and sustainability

Jun muramatsu

Scientific and Medical Instruments Manufacturer, Japan

This abstract delves into the captivating realm of 'retort food packing' and how it can contribute into the imminent global food crisis. The retort pouch packaging market was valued at USD3.06 billion in 2020, and is estimated to reach USD4~5billion by 2026 and yet is expected to grow at the pace of 6% CGR over the coming years.

The once luxury type of package which used to be popular only in certain markets, namely Japan, has immensely increased its demand globally due to several factors mainly for the preference for ready to serve packing solutions which also ensures room temperature distribution and longer shelf life.

We would like to present an overview of the 'retort food packing with the following contents:

0. Background

Global challenges caused by contradiction of "Food Crisis" and "Food Waste"

1. What is retort food?

1-1.Characteristics and Benefits of retort foods

1-2.Type of retort foods

1-3.Status of retort foods in each country Japan

Europe United States

Asia

2. Development and manufacturing of retort foods

2-1. Manufacturing process of retort food

2-2. Necessary equipment in retort food packaging

3. About the sterilization conditions of retort foods

3-1. what to consider about the microorganisms/bacteria on foods

3-2. what are F-Value, P-Value (D/Z value)

4. How it can contribute to the global sustainable future, especially in terms of food safety, reduction in food waste as well as easy handling without requiring modernized logistics such as refrigerated warehouse or transportation.

4-1. Examples in Japanese market

4-2. Demands in OD & base projects for developing markets

5. Quick presentation of & lp equipment suited for retort food packing 5-1.

Advanced Retort & utoclave model RK-3030

5-2. Multipurpose Retort & utoclave model RKZ-40II

5-3. Low-end economical Retort cooker model RKE-40.

Biography

Takahiro Imai, Senior Managing Director. He majored in mechanical engineering at Nagoya University in Japan and has expertise in thermodynamics and biomaterials engineering. After graduating, engaged in Food technology for packaged foods, including continuous sterilization systems, at a major general food manufacturer. Currently, he is in charge of designing and developing small retort sterilizers for a food manufacturing Venture Company.

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Jordan's population-based food consumption survey: Protocol for design and development

Dima AlHalaika

The Hashemite University, Jordan

Background: One of the factors influencing health and well-being is dietary patterns. Data on food consumption are necessary for evaluating and developing community nutrition policies. Few studies on Jordanians' food consumption and dietary habits at various ages have been conducted, despite the increased prevalence of overweight, obesity, and chronic diseases. This will be the first study focusing on Jordanians' food consumption patterns that includes children, adolescents, adults, and older adults.

Objective: This cross-sectional study aims to describe the design and methodology of the Jordan's Population-based Food Consumption Survey, 2021-2022, which was developed to collect data on food consumption, including energy, nutrients, and food group intake, from a representative sample of Jordanians and to determine the prevalence of overweight and obesity and their relationship to food consumption.

Methods: Participants were selected by stratified random sampling, using the Estimated Population of the Kingdom by Governorate, Locality, Sex, and Households, 2020 as the sampling frame. The food consumption survey sample was at the population level, representing gender and age classes (8-85 years old). The data collection period was 6 months. Food consumption was assessed using 24-hour dietary recall (2 nonconsecutive days, 1 week apart) interviews representing weekdays and weekends. In addition to data on food consumption, information on the use of food supplements, sociodemographic and socioeconomic status, and health was gathered. Weight, height, and waist circumference were all measured.

Results: The survey included 632 households with 2145 participants, of which 243 (11.3%) were children, 374 (17.4%) were adolescents, 1428 (66.6%) were adults and 99 (4.6%) were older adults. Three food consumption databases were used to stratify the mean 24-hour dietary recall food consumption into energy intake, carbohydrates, proteins, fats, fiber, vitamins and minerals, and food groups. BMI was calculated and classified as normal, overweight, or obese. Central obesity was classified as normal or abnormal based on the waist-to-height ratio. The survey results will be disseminated based on age, energy, nutrient, and food group consumption. The prevalence of overweight and obesity by age group will be presented, as well as a comparison to the situation in Eastern Mediterranean countries.

Conclusions: The survey data will be helpful in nutritional studies, assessing changes in dietary patterns, and developing and evaluating nutrition or health policies. It will be a solid base for developing a future national surveillance system on food consumption patterns with comprehensive food consumption, physical activity, biochemical, and blood pressure data.

Biography

Dima Al Halaika have participated as a research assistant in several research projects concerned with the nutrition of Jordanian society, with several institutions and organizations such as UNRWA, the Mother and Child Center, the Hashemite University and the University of Science and Technology. She has received complete data analysis and entry and was also responsible for training data collectors.

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The interplay of dietary fibers and intestinal micro biota affects Type-2 Diabetes by generating short-chain fatty acids**Muhammad Mazhar**
Guizhou University, China

Foods contain dietary fibers which can be classified into soluble and insoluble forms. The nutritional composition of fast foods is considered unhealthy because it negatively affects the production of short-chain fatty acids (SCFAs). Dietary fiber is resistant to digestive enzymes in the gut, which modulates the anaerobic intestinal microbiota (AIM) and fabricates SCFAs. Acetate, butyrate, and propionate are dominant in the gut and are generated via Wood-Ljungdahl and acrylate pathways. In pancreatic dysfunction, the release of insulin/glucagon is impaired, leading to hyperglycemia. SCFAs enhance insulin sensitivity or secretion, beta-cell function, leptin release, mitochondrial function, and intestinal gluconeogenesis in human organs, which positively affects type 2 diabetes (T2D). Research models have shown that SCFAs either enhance the release of peptide YY (PYY) and glucagon-like peptide-1 (GLP-1) from L-cells (entero-endocrine), or promotes the release of leptin hormone in adipose tissues through G-protein receptors GPR-41 and GPR-43. Dietary fiber is a component that influences the production of SCFAs by AIM, which may have beneficial effects on T2D. This review focuses on the effectiveness of dietary fiber in producing SCFAs in the colon by the AIM as well as the health-promoting effects on T2D.

Biography

Muhammad Mazhar, a doctoral student at Guizhou University China, is leading this research project, which is expected to be completed by the next year. The present study focuses on the investigation of Adzuki beans and their endogenous components, including the determination of their glycemic index, phenolic profile, and fermentation by human gut microbiota. Additionally, this research aims to explore the genomics and metabolomics of fermented beans. The findings of this study are expected to provide valuable insights into the nutritional and health benefits of Adzuki beans and their potential as a functional food source. The combined effects of endogenous components of adzuki beans will be evaluated for type 2 diabetes patients.

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Screening of phyto-components with food borne pathogen inhibiting traits in supercritical carbon dioxide and soxhlet prosopis juliflora leaves extract using GC-MS

Nagaraj M. Naik

University of Agricultural Sciences, India

Prosopis juliflora leaf supercritical fluid extract was used in this work to screen the bioactive components and evaluate its antimicrobial traits against food borne pathogens. For extraction, supercritical carbon dioxide and Soxhlet techniques were applied. For the purpose of characterising the phyto-components, the extract was run through a Gas Chromatography-Mass Spectrometer (GC-MS) and a Fourier Transform Infrared. When compared to soxhlet extraction, more components (35) were eluted by supercritical fluid extraction (SFE), according to GC-MS screening. In tests using *Escherichia coli*, *Salmonella enterica*, and *Staphylococcus aureus* as food-borne bacterial pathogens, SFE *P. juliflora* extracts showed greater zones of inhibition of 13.90 mm, 14.47 mm, and 14.53 mm, respectively. The recovery of the phyto-components by SFE is more effective than by soxhlet extraction, according to the results of GC-MS screening. *P. juliflora* may offer unique naturally occurring inhibitory metabolites that act as antibacterial agents.

Biography

Nagaraj M. Naik is a distinguished researcher affiliated with the Pesticide Residue and Food Quality Analysis Laboratory at the University of Agricultural Sciences in Raichur, India. His expertise lies in the analysis of pesticide residues and food quality. Through innovative approaches and meticulous research, Naik contributes significantly to ensuring food safety and quality standards. His work is invaluable to the agricultural and food industry.

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Formation and correction of organoleptic indices of ready sparkling wine by adding expedition liqueur

Taranenko V.I

Kuban State Technological University, Russian Federation

Sparkling wine is a multi-component water-alcoholic system; the quality depends on the chemical composition, as in the process of oxidation-reduction reactions sensory-active compounds are formed, which are responsible for organoleptic indicators. Secondary fermentation is the production of hues, which give the wine its specific taste, aroma and colour. In the classic method of champagnization, the final stage in the formation of the organoleptic properties is the addition of expeditionary liqueur. A good number of studies have been reported in the scientific literature on the effect of expeditionary liqueur, but none of these studies summarises the positive effect of the catalytic effect of the dosage on the opening and prolongation of organoleptic properties. The aim of the article was to identify individual changes in organoleptic indices under the influence of dosage. The evidence supporting the role of expedition liquor in the formation of organoleptic indicators was identified and summarized and the main biochemical reactions taking place during dosage were described.

Methodology and theoretical orientation: Studies on the effect of expedition liqueur on organoleptic indicators of finished sparkling wine are analysed. The chemical composition of sparkling wine changes after the addition of the dosage due to the passing of the glucose-proline reaction of Maillard. It was found that this reaction results in the formation of many sensory-active compounds in particular. The key aromatic compounds contribute to the respective aroma due to the low concentration perception threshold. Cavitation desorption processes are related to proteins and amino acids. Proteins are responsible for foaming by exhibiting unfolding and adsorption capacity at the gas-liquid interface, while amino acids, in turn, increase the wine's viscosity through strong bonds. The addition of forwarding liqueur reduced the pressure by 3 atm, which pacified the wine and stabilized the "boiling" process, which is characterised by the interaction between the tensioactive components of the wine and the dissolved carbon dioxide molecules. The foaming of the control samples correlates directly with their chemical composition, which changes under the influence of the expedition liqueur. A study of the effect of experimental dosages of expeditionary liqueur on foaming ability revealed that the wine proteins associated with pathogenesis are degraded after the dosage has been applied. Chromaticity is the musical and color synesthesia by which a taster builds up an associative series when first encountering a sparkling wine. The so-called "crunching" sound, reproduced by the bursting bubbles on the surface of the sparkling wine poured into the glass, anticipates a chromatic reference of the color palette. The chromatic values of the test samples, into which the sulphated expedition liqueur was added, had changes of colour palette from soft pink to copper. The pink hues in these test samples are possible due to the binding of pigments with bisulphite. The chromatic values of the test samples, in which un sulphitised expeditionary liqueur was added, had a clear colour gradient from "frightened nymph thigh" to "acaju" colour. Without the addition of sulphiting agents, the colour palette changed uniformly and homogeneously.

Conclusion: On the basis of the analysis of the received data it is possible to claim, that by regulating the dosage of the expedition liqueur during the sparkling wine production it is possible to influence the initiation and course of the sugar-amine reaction of Maillard, which allows purposefully forming and correcting chromatic, frothy and sparkling wine parameters.

Biography

Takahiro Imai, Senior Managing Director. He majored in mechanical engineering at Nagoya University in Japan and has expertise in thermodynamics and biomaterials engineering. After graduating, engaged in Food technology for packaged foods, including continuous sterilization systems, at a major general food manufacturer. Currently, he is in charge of designing and developing small retort sterilizers for a food manufacturing Venture Company.