

Dairy Derived Ingredients Food And Nutraceutical Uses

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Dairy is a cornerstone of human nutrition for millennia, offering a treasure trove of ingredients beyond milk and cheese. From the humble casein to the complex whey protein, dairy-derived ingredients are finding increasing applications in food and nutraceutical industries. This article delves into the diverse properties of these ingredients, highlighting their unique functionalities and the exciting opportunities they present for innovative product development.

The Dairy Spectrum: A Diverse Array of Ingredients

Dairy ingredients encompass a wide range of components, each possessing distinct properties that dictate their specific applications:

- 1. Milk Proteins**
Casein: The primary protein in milk, casein forms micelles, complex structures that contribute to the creamy texture of dairy products. Its unique properties, including slow digestion, excellent water binding, and emulsifying capabilities, make it a versatile ingredient for food applications like dairy beverages, yogurt, cheese, infant formula, meat binders, and processed foods.
- 2. Milk Fats**
Butterfat: The fat fraction of milk, butterfat contributes to flavor, texture, and palatability. Its high melting point and creamy mouthfeel make it ideal for food applications such as butter, margarine, ice cream, and baked goods.
- 3. Nutraceutical Applications**
Fatty acid supplementation and functional food ingredients: Milkfat Globule Membrane (MFGM) is a complex phospholipid-rich membrane surrounding milk fat globules. MFGM exhibits various health benefits, including immune support and cognitive function. Its application in food applications includes infant formula, dairy-based beverages, and functional foods.
- 4. Memory enhancement, brain health, and immune modulation**
- 5. Lactose**
Milk Sugar: Lactose is the primary carbohydrate in milk. While its digestion can be challenging for some individuals, its prebiotic properties support gut health. Lactose is used in food applications like infant formula, baked goods, and confectionery.
- 6. Nutraceutical Applications**
Prebiotic supplements: Lactose is used in prebiotic supplements to support gut health products and lactose-free dairy alternatives.
- 7. 4. Dairy Minerals**
Calcium: A crucial mineral for bone health, calcium is abundantly present in dairy products. Its application extends to food applications like fortified milk, yogurt, and cheese.
- 8. Nutraceutical Applications**
Calcium supplements: Calcium is used in bone health products and osteoporosis prevention.
- 9. Phosphorus**: Essential for energy metabolism, phosphorus is another key mineral in dairy. Its application includes food applications like fortified milk, yogurt, and cheese.
- 10. Nutraceutical Applications**
Phosphorus supplements: Sports nutrition and metabolic support.

Functional Properties and Applications

Dairy-derived ingredients possess a range of functional properties and applications, including:

functional properties that make them valuable in various food and nutraceutical applications Protein Functionality Casein and whey protein contribute to Emulsification Stabilizing emulsions in dairy beverages sauces and processed meats Gelation Forming gels in yogurt cheese and desserts Foaming Creating stable foams in whipped toppings and coffee creamers Texture Enriching the texture of baked goods and meat products Fat Functionality Butterfat and MFGM play significant roles in 3 Flavor and aroma Enhancing the sensory qualities of dairy products and other food items Mouthfeel Providing a creamy and smooth texture Nutritional value Providing essential fatty acids and bioactive compounds Lactose Functionality Lactose serves as Sweetener Contributing to the sweetness of dairy products Prebiotic Promoting the growth of beneficial bacteria in the gut Mineral Functionality Dairy minerals contribute to Bone health Enhancing bone density and reducing fracture risk Metabolic processes Supporting energy production and other vital bodily functions Emerging Trends and Future Directions The dairy industry is constantly evolving with new technologies and innovations pushing the boundaries of dairyderived ingredient applications Hydrolyzed Proteins Breaking down proteins into smaller peptides enhances their digestibility and bioavailability making them ideal for Sports nutrition Enhancing muscle recovery and performance Clinical nutrition Addressing specific health conditions and nutritional needs Microencapsulation Encapsulating dairy ingredients protects them from degradation and enhances their delivery and stability enabling their use in Functional foods Enhancing the bioavailability and efficacy of bioactive components Nutraceuticals Tailoring ingredient release for specific health benefits Dairy Alternatives Plantbased alternatives are gaining popularity but dairy ingredients can still play a role in Flavor and texture enhancement Adding dairy notes to plantbased milk and yogurt Nutritional fortification Supplementing plantbased products with essential nutrients Conclusion Dairyderived ingredients represent a versatile and valuable resource for food and nutraceutical industries Their diverse functionalities combined with ongoing research and innovation continue to drive the development of novel products that cater to evolving consumer needs and preferences As the industry continues to explore the potential of dairy we can expect to see even more innovative and beneficial applications of these natural and nutrientrich ingredients in the future 4

Functional Foods and BiotechnologyRegulation of Functional Foods and NutraceuticalsDictionary of Food IngredientsTinned foods and how to use them: menus and recipesInnovation in Healthy and Functional FoodsDictionary of Food and IngredientsClinical Aspects of Functional Foods and NutraceuticalsBioactive Foods and ExtractsDictionary of Food IngredientsFoods and MarketsFoods and their adulterationFoods, Nutrients and Food Ingredients with Authorised EU Health ClaimsAnnual ReportAnnual Reports of the Butter and Cheese AssociationsThe Pharmaceutical EraAgriculture of PennsylvaniaThe Maillard Reaction in Foods and NutritionThe British Food Journal and Analytical ReviewJustice of the Peace and Local Government ReviewSelling Street and Snack Foods Kalidas Shetty Clare M. Hasler Robert S. Igoe Tinned foods Dilip Ghosh Robert S. Igoe Dilip Ghosh Ronald Ross Watson Robert S. Igoe Harvey Washington Wiley Michele Jeanne Sadler Storrs Agricultural Experiment Station Ontario. Department of Agriculture Pennsylvania. State Board of Agriculture George R. Waller Peter Fellows Functional Foods and Biotechnology Regulation of Functional Foods and Nutraceuticals Dictionary of Food Ingredients Tinned foods

and how to use them: menus and recipes Innovation in Healthy and Functional Foods Dictionary of Food and Ingredients Clinical Aspects of Functional Foods and Nutraceuticals Bioactive Foods and Extracts Dictionary of Food Ingredients Foods and Markets Foods and their adulteration Foods, Nutrients and Food Ingredients with Authorised EU Health Claims Annual Report Annual Reports of the Butter and Cheese Associations The Pharmaceutical Era Agriculture of Pennsylvania The Maillard Reaction in Foods and Nutrition The British Food Journal and Analytical Review Justice of the Peace and Local Government Review Selling Street and Snack Foods *Kalidas Shetty Clare M. Hasler Robert S. Igoe Tinned foods Dilip Ghosh Robert S. Igoe Dilip Ghosh Ronald Ross Watson Robert S. Igoe Harvey Washington Wiley Michele Jeanne Sadler Storrs Agricultural Experiment Station Ontario. Department of Agriculture Pennsylvania. State Board of Agriculture George R. Waller Peter Fellows*

the second book of the food biotechnology series functional foods and biotechnology biotransformation and analysis of functional foods and ingredients highlights two important and interrelated themes biotransformation innovations and novel bio based analytical tools for understanding and advancing functional foods and food ingredients for health focused food and nutritional security solutions the first section of this book provides novel examples of innovative biotransformation strategies based on ecological biochemical and metabolic rationale to target the improvement of human health relevant benefits of functional foods and food ingredients the second section of the book focuses on novel host response based analytical tools and screening strategies to investigate and validate the human health and food safety relevant benefits of functional foods and food ingredients food biotechnology experts from around the world have contributed to this book to advance knowledge on bio based innovations to improve wider health focused applications of functional food and food ingredients especially targeting non communicable chronic disease ncd and food safety relevant solution strategies key features provides system science based food biotechnology innovations to design and advance functional foods and food ingredients for solutions to emerging global food and nutritional insecurity coupled public health challenges discusses biotransformation innovations to improve human health relevant nutritional qualities of functional foods and food ingredients includes novel host response based food analytical models to optimize and improve wider health focused application of functional foods and food ingredients the overarching theme of this second book is to advance the knowledge on metabolically driven food system innovations that can be targeted to enhance human health and food safety relevant nutritional qualities and antimicrobial properties of functional food and food ingredients the examples of biotransformation innovations and food analytical models provide critical insights on current advances in food biotechnology to target design and improve functional food and food ingredients with specific human health benefits such improved understanding will help to design more ecologically and metabolically relevant functional food and food ingredients across diverse global communities the thematic structure of this second book is built from the related initial book which is also available in the food biotechnology series functional foods and biotechnology sources of functional food and ingredients edited by kalidas shetty and dipayan sarkar isbn 9780367435226 for a complete list of books in this series please visit our website at crcpress.com food biotechnology series book series crcfoobiotech

regulation of functional foods and nutraceuticals a global perspective offers a comprehensive resource for information on regulatory aspects of the growing and economically important functional food industry regulatory systems and definitions of key terms food supplement drug etc vary from country to country a thorough understanding of laws and regulation within and among key countries with regard to functional foods herbal extracts or drugs and nutritional supplements is critical to the direction of food companies that are developing products for these markets international experts with legal and or scientific expertise address relevant topics from quality issues to organic foods to labeling innovative product development within the framework of existing regulations will be addressed in individual chapters overview chapters will discuss global principles inter country trading issues and present a comparison of the laws and regulations within different countries graphically a must have handbook for research professionals management and marketing strategists in the worldwide functional foods nutritional supplements business food technicians and engineers responsible for manufacturing quality in this industry should add it to their library to ensure that they have a thorough knowledge of the applicable legal requirements the book will also serve as an indispensable shelf reference for lawyers in the food industry and government health professionals with regulatory responsibilities

the focus of food science and technology has shifted from previous goals of improving food safety and enhancing food taste toward providing healthy and functional foods today s consumers desire foods that go beyond basic nutrition foods capable of promoting better health or even playing a disease prevention role to meet this need for innovation

the dictionary of food ingredients is a unique easy to use source of information on over 1 000 food ingredients like the previous editions the new and updated third edition provides clear and concise information on currently used additives including natural ingredients fda approved artificial ingredients and compounds used in food processing the dictionary entries organized in alphabetical order include information on ingredient functions chemical properties and uses in food products the updated and revised third edition contains approximately 150 new entries and includes an updated and expanded bibliography it also lists food ingredients according to us federal regulatory status users of the two previous editions have commented favorably on the dictionary s straightforward and clearly written definitions and we have endeavored to maintain that standard in this new edition we trust it will continue to be a valuable reference for the food scientist food processor food product developer nutritionist extension specialist and student r s i g o e y h h u i v i i ingredients a acacia see arabic acesulfame k a non nutritive sweetener also termed acesulfame potassium it is a white crystalline product that is 200 times sweeter than sucrose it is not metabolized in the body it is relatively stable as a powder and in liquids and solids which may be heated acesulfame k is approved for use in dry food products acesulfame potassium see acesulfame k

in the last three decades revolutionary achievements have taken place in nutraceutical and functional food research including the introduction of a number of cutting edge dietary supplements supported by human clinical trials and strong patents novel

manufacturing technologies including unique extraction processes bioavailability improvements through delivery technologies such as nanotechnology and innovative packaging have been critical steps for their successful positioning in the marketplace and consumer acceptance worldwide nonetheless mixed messages have emerged from both the scientific community and the media concerning the potential benefits of foods and nutrients in the treatment and prevention of disease this confusion in addition to existing marketed products making questionable health claims have led health practitioners and consumers to become skeptical about nutritional claims of new and emerging food products clinical aspects of functional foods and nutraceuticals provides an extensive overview of the clinical aspects of functional foods and nutraceuticals it contains information on both nutritional challenges and potential health benefits of functional foods and nutraceuticals in addition to exploring the underpinning science the book also focuses on food innovation functional foods in human health food drug interactions functional foods in medicine the seed to clinic approach global regulatory frameworks challenges and future directions the book provides an essential overview of the clinical aspects surrounding functional foods and nutraceuticals for key stakeholders drawing links between areas of knowledge that are often isolated from each other this form of knowledge integration will be essential for practice especially for policy makers and administrators

vegetables fruits and herbs have been used as cancer preventatives for millennia but the research community is currently experiencing a surge in information related to the effect of plant products in cancer treatment bioactive foods and extracts cancer treatment and prevention organizes these cutting edge findings it also addresses the wide availability of botanicals and their extracts and how their use is largely unregulated particularly in the united states this well organized work is a must have resource for researchers and healthcare professionals who are charged with making decisions regarding the benefits risks and value of botanicals in the prevention and treatment of cancers

provides access to vital information on 996 permissible food ingredients approved by the u s food and drug administration including descriptions of each ingredient functions properties and applications

foods nutrients and food ingredients with authorised eu health claims provides an overview of how health claims are regulated in the european union as well as detailed scientific and regulatory information about permitted health claims for particular types of foods and ingredients part one provides a background to the regulation of health claims in europe part two focuses on authorised disease risk reduction claims claims relating to children s development and health and proprietary claims part three sets out ingredients with permitted general function claims including choline creatine sweeteners dietary lactase supplements and polyphenols in olive oil part four outlines foods and nutrients with permitted health claims with chapters on vitamins and minerals proteins meat fish water and the replacement of saturated fats foods nutrients and food ingredients with authorised eu health claims is the go to resource for r d managers and technical managers in the food and beverage and dietary supplements industry product development managers health

professionals and academic researchers in the field provides a comprehensive overview of foods and food substances that have achieved approved health claims in europe under regulation ec 1924 2006 covers properties and applications of each ingredient as well as evidence for the health claim and how it benefits consumers outlines the importance of each claim in product development and marketing and regulatory issues such as conditions of use

containing reports of the state board of agriculture the state agricultural society the state dairymen s association the state fruit growers association and the state college for varies

abstract various aspects of the maillard reaction a non enzymatic reaction that gives food its flavor and color during frying roasting and baking are discussed for food scientists and nutritionists in 29 technical papers the papers are organized into 7 sections covering historical development chemical aspects 6 papers flavors tastes and odors of cooked foods 6 papers food technology aspects 3 papers nutritional aspects with emphasis on lysine losses 6 papers in vivo maillard reactions 2 papers and toxicological aspects with emphasis on mutagenproduction 5 papers a literature review of the sensory properties of almost 450 maillard reaction products is included wz

the main purpose of this booklet is to create awareness about the multitude of opportunities that street and snack foods can provide for small scale farmers in rural peri urban and urban areas moreover street and snack foods have positive effects on other member of the supply chain as well as poor consumers in rural peri urban and urban communities it is hoped that policy makers and development personnel recognize such opportunities and provide a supporting and enabling environment for such a livelihood strategy to be pursued
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