บทความที่น่าสนใจประจำเดือนกันยายน 2558

สาขาวิทยาศาสตร์และเทคโนโลยี

1	Title:	Electrostatic Coating Technologies for Food Processing
	Author:	Sheryl A. Barringer and Nutsuda Sumonsiri
	Journal:	Annual Review of Food Science and Technology, Vol. 6, 2015, Pages 157-169
	Abstract:	The application of electrostatics in both powder and liquid coating can improve the quality of food, such as its appearance, aroma, taste, and shelf life. Coatings can be found most commonly in the snack food industry, as well as in confectionery, bakery, meat and cheese processing. In electrostatic powder coating, the most important factors influencing coating quality are powder particle size, density, flowability, charge, and resistivity, as well as the surface properties and characteristics of the target. The most important factors during electrostatic liquid coating, also known as electrohydrodynamic coating, include applied voltage and electrical resistivity and viscosity of the liquid. A good understanding of these factors is needed for the design of optimal coating systems for food processing.
	Database:	Annual Review

2	Title:	Collagen and Gelatin
	Author:	Dasong Liu, Mehdi Nikoo, Gökhan Boran, Peng Zhou, and Joe M. Regenstein
	Journal:	Annual Review of Food Science and Technology, Vol. 6, 2015, Pages 527-557
	Abstract:	Collagen and gelatin have been widely used in the food, pharmaceutical, and cosmetic industries due to their excellent biocompatibility, easy biodegradability, and weak antigenicity. Fish collagen and gelatin are of renewed interest, owing to the safety and religious concerns of their mammalian counterparts. The structure of collagen has been studied using various modern technologies, and interpretation of the raw data should be done with caution. The structure of collagen may vary with sources and seasons, which may affect its applications and optimal extraction conditions. Numerous studies have investigated the bioactivities and biological effects of collagen, gelatin, and their hydrolysis peptides, using both in vitro and in vivo assay models. In addition to their established nutritional value as a protein source, collagen and collagen-derived products may exert various potential biological activities on cells in the extracellular matrix through the corresponding food-derived peptides after ingestion, and this might justify their applications in dietary supplements and pharmaceutical preparations. Moreover, an increasing number of novel applications have been found for collagen and gelatin. Therefore, this review covers the current understanding of the structure, bioactivities, and biological effects of collagen, gelatin, and gelatin hydrolysates as well as their most recent applications.
	Database:	Annual Review

3	Title:	Pickering Emulsions for Food Applications: Background, Trends, and Challenges
	Author:	Claire C. Berton-Carabin and Karin Schroën
	Journal:	Annual Review of Food Science and Technology, Vol. 6, 2015, Pages 527-557
	Abstract:	Particle-stabilized emulsions, also referred to as Pickering emulsions, have garnered exponentially increasing interest in recent years. This has also led to the first food applications, although the number of related publications is still rather low. The involved stabilization mechanisms are fundamentally different as compared to conventional emulsifiers, which can be an asset in terms of emulsion stability. Even though most of the research on Pickering emulsions has been conducted on model systems, with inorganic solid particles, recent progress has been made on the utilization of food-grade or food-compatible organic particles for this purpose. This review reports the latest advances in that respect, including technical challenges, and discusses the potential benefits and drawbacks of using Pickering emulsions for food applications, as an alternative to conventional emulsifier-based systems.
	Database:	Annual Review

4	Title:	Formation and Degradation of Beta-casomorphins in Dairy Processing
	Author:	Duc Doan Nguyen, Stuart Keith Johnson, Francesco Busetti & Vicky Ann Solah
	Journal:	Critical Reviews in Food Science and Nutrition, Volume 55, Issue 14, 2015, Pages 1955-1967
	Abstract:	Milk proteins including casein are sources of peptides with bioactivity. One of these peptides is beta-casomorphin (BCM) which belongs to a group of opioid peptides formed from β-casein variants. Beta-casomorphin 7 (BCM7) has been demonstrated to be enzymatically released from the A1 or B β-casein variant. Epidemiological evidence suggests the peptide BCM 7 is a risk factor for development of human diseases, including increased risk of type 1 diabetes and cardiovascular diseases but this has not been thoroughly substantiated by research studies. High performance liquid chromatography coupled to UV-Vis and mass spectrometry detection as well as enzyme–linked immunosorbent assay (ELISA) has been used to analyze BCMs in dairy products. BCMs have been detected in raw cow's milk and human milk and a variety of commercial cheeses, but their presence has yet to be confirmed in commercial yoghurts. The finding that BCMs are present in cheese suggests they could also form in yoghurt, but be degraded during yoghurt processing. Whether BCMs do form in yoghurt and the amount of BCM forming or degrading at different processing steps needs further investigation and possibly will depend on the heat treatment and fermentation process used, but it remains an intriguing unknown.
	Database:	Taylor & Francis Journals

5	Title:	Weighing the Evidence of Common Beliefs in Obesity Research
	Author:	Krista Casazza, Andrew Brown, Arne Astrup, Fredrik Bertz, Charles Baum, Michelle Bohan Brown, John Dawson, Nefertiti Durant, Gareth Dutton, David A. Fields, Kevin R. Fontaine, Steven Heymsfield, David Levitsky, Tapan Mehta, Nir Menachemi, P.K. Newby, Russell Pate, Hollie Raynor, Barbara J. Rolls, Bisakha Sen, Daniel L. Smith JR., Diana Thomas, Brian Wansink & David B. Allison
	Journal:	Critical Reviews in Food Science and Nutrition, Volume 55, Issue 14, 2015, Pages 2014-2053
	Abstract:	Obesity is a topic on which many views are strongly held in the absence of scientific evidence to support those views, and some views are strongly held despite evidence to contradict those views. We refer to the former as “presumptions” and the latter as “myths.” Here, we present nine myths and 10 presumptions surrounding the effects of rapid weight loss; setting realistic goals in weight loss therapy; stage of change or readiness to lose weight; physical education classes; breastfeeding; daily self-weighing; genetic contribution to obesity; the “Freshman 15”; food deserts; regularly eating (versus skipping) breakfast; eating close to bedtime; eating more fruits and vegetables; weight cycling (i.e., yo-yo dieting); snacking; built environment; reducing screen time in childhood obesity; portion size; participation in family mealtime; and drinking water as a means of weight loss. For each of these, we describe the belief and present evidence that the belief is widely held or stated, reasons to support the conjecture that the belief might be true, evidence to directly support or refute the belief, and findings from randomized controlled trials, if available. We conclude with a discussion of the implications of these determinations, conjecture on why so many myths and presumptions exist, and suggestions for limiting the spread of these and other unsubstantiated beliefs about the obesity domain.
	Database:	Taylor & Francis Journals

6	Title:	Food oral processing: Mechanisms and implications of food oral destruction
	Author:	Jianshe Chen
	Journal:	Trends in Food Science & Technology, Volume 45, Issue 2, October 2015, Pages 222–228
	Abstract:	Background Food oral processing is a simultaneous process of food destruction and sensory perception. How a food breaks down its structure inside the mouth and what mechanisms control this process are hugely important to our eating experience and sensory perception. A proper understanding of this process is urgently needed by the food industry for better design and manufacturing of quality tasty food. Scope and approach This review article analyses research findings from literature and from author's own laboratory in order to identify main controlling mechanisms of food oral destruction. Appropriate experimental evidences are given wherever available to demonstrate the important implications of different destruction mechanisms to sensory perception.

		Key findings and conclusions Three major controlling mechanisms of food oral destruction are identified: the mechanical size reduction, the colloidal destabilisation, and the enzymatic interactions. These mechanisms may be applicable to different food materials either independently or collectively. They could also be applicable through the whole eating process or just at a certain stage of an eating process.
	Database:	ScienceDirect

7	Title:	Application of modified atmosphere packaging as a safety approach to fresh-cut fruits and vegetables – A review
	Author:	M. Oliveira, M. Abadias, J. Usall, R. Torres, N. Teixidó, I. Viñas
	Journal:	Trends in Food Science & Technology, Volume 46, Issue 1, November 2015, Pages 13–26
	Abstract:	This review provides an overview of the effect of modified atmosphere packaging (MAP) on the survival and growth of foodborne pathogens on fresh-cut fruits and vegetables. Substantial technological advances have been made in this area, mainly in improving the quality and shelf-life of minimally processed products. Nevertheless, attention must be paid on the survival and growth of pathogenic microorganisms that may be present in fruits and vegetables. Modified atmosphere packaging (MAP) in combination with refrigeration temperatures could be used as a mild preservation technique for safety of minimally processed fruits and vegetables. However, the effect of MAP on microorganisms can vary, depending mainly on the storage conditions and the type of packaged product.
	Database:	ScienceDirect

8	Title:	Current trends in natural preservatives for fresh sausage products
	Author:	Celia J. Hugo, Arno Hugo
	Journal:	Trends in Food Science & Technology, Volume 45, Issue 1, September 2015, Pages 12–23
	Abstract:	Natural preservatives from bacteria, plants and animals currently in use in fresh sausage manufacture were investigated. Bacteriocins and organic acids from bacterial origins showed good antimicrobial activities against pathogens. Plant-derived antimicrobials could increase the shelf-life of fresh sausages and in some cases also decrease lipid oxidation and decrease colour loss. Chitosan was the only animal-derived antimicrobial investigated and also increased shelf life of fresh sausages. It was evident that the natural antimicrobials would perform even better in combination with other natural antimicrobials, or lowered levels of synthetic antimicrobials or other hurdles such as specific packaging material.
	Database:	ScienceDirect

9	Title:	Application of Chromatographic Techniques in the Detection and Identification of Constituents Formed during Food Frying: A Review
	Author:	Qing Zhang, Wen Qin, Meiliang Li, Qun Shen and Ahmed S.M. Saleh
	Journal:	Comprehensive Reviews in Food Science and Food Safety, Volume 14, Issue 5, pages 601–633, September 2015
	Abstract:	Frying is one of the most popular food processing methods. However, many physicochemical reactions occur during frying, forming complex products in both the frying oil and the fried food. Chromatographic techniques have been successfully applied to characterize the products formed during food-frying or during a simulated frying process. In this review, the specific products analyzed by gas chromatography (GC) and high-performance liquid chromatography (HPLC) are elucidated in detail. The most studied components are polar compounds (such as volatile compounds, hydrolysis products, oxidized triacylglycerol [TAG] decomposition products, oxidized TAG monomers, sterol oxides, oxygenated TAG polymers, and acrylamide) and nonpolar compounds (such as cyclic fatty acid monomers and trans isomers), which are classified based on their polarity. However, the definite structures of TAG polymers and sterol oxides, and polymers analyzed by GC or HPLC-based methods are only investigated in modeled reactions. Furthermore, some of the sample pretreatments and chromatographic methods are only used to analyze the known products. A number of earlier trace amounts of undetected products need to be investigated by more effective detection techniques. The development of multidimensional chromatographic techniques and elaborate mass spectrometry detectors makes composition analysis possible for the food-frying process, which may effectively promote the development of quality monitoring and nutrition evaluation for the fried foods.
	Database:	Wiley Online Library

10	Title:	Marbling Analysis for Evaluating Meat Quality: Methods and Techniques
	Author:	Weiwei Cheng, Jun-Hu Cheng, Da-Wen Sun and Hongbin Pu
	Journal:	Comprehensive Reviews in Food Science and Food Safety, Volume 14, Issue 5, pages 523–535, September 2015
	Abstract:	Marbling is one of the most important traits determining the quality of meat, and the richness of marbling is often considered by consumers as the primary factor when buying meat in view of its contribution to sensory characteristics of meat. In the market, there has been a constant demand for meat products with an assured degree of marbling. Conventionally, marbling of meat is assessed by visual appraisal or chemical analysis, which has the disadvantages of being subjective and time-consuming. In order to improve the detection accuracy and production efficiency, a variety of modern instrumental techniques, including spectroscopic techniques, imaging techniques, and hyperspectral

	imaging, have been developed for marbling analysis. This paper gives a comprehensive overview on the recent advances in marbling analysis. What's more, the advantages, limitations and some perspectives on the future trends of these techniques are also presented.
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