中国工程科技知识中心
China Knowledge Centre for Engineering Sciences and Technology

《互联网农产品质量》专题快报

2019 年第 13 期，总第 13 期

中国工程科技知识中心地理资源与生态专业分中心
中国科学院地理科学与资源研究所

2019 年 12 月 6 日

《中国工程院战略咨询项目信息参考》是中国工程科技知识中心提供的一项信息推送服务，该服务组织专业团队，基于中国工程科技知识中心地理资源与生态专业分中心在工程科技领域积累的数据资源，面向战略咨询研究项目需求提供信息的搜集、整理、加工、推送服务。

该信息参考面向院士专家开放订阅，每两周一期，欢迎订阅。

本刊主编：杨雅萍　　**本期编辑：**陈晓娜　辛颖
电子邮箱：geockcest@igsnrr.ac.cn　　**电话：**64888145
通信地址：100088　北京 8068 信箱，北京市西城区冰窖口胡同 2 号

【动态信息】

1. 标题：唐山市创建国家农产品质量安全市纪实

【河北新闻网】沃野之上、山海之中，唐山大地充满了浓浓的丰收气息。国家农产品质量安全市创建也在此时收获硕果：10 月 29 日农业农村部发布公告，唐山市正式成为全国 15 个、河北省唯一的国家农产品质量安全市。农产品质量安全工作走在了全国前列，“安全食品唐山造”品牌响彻大江南北。近年来，市委、市政府严格按照习近平总书记关于农产品质量安全“四个最严”的总体要求，狠抓农产品质量安全市创建工作，为保证广大人民群众“舌尖上的安全”作出“唐山贡献”。

链接：

http://baijiahao.baidu.com/s?id=1651245823721544422&wfr=spider&for=pc

2. 标题：技术赋能食品安全 苏果“生鲜溯源”南京大店全覆盖

【北国网】近日，苏果南京市内 48 家大中型门店全面上线“生鲜溯源”系统，向消费者全面展示“食品安全溯源信息化系统管理平台”，保障消费者舌尖上的安全。

链接：

http://www.cb.com.cn/index/show/gd/cv/cv135864491499/p/s.html

【文献速递】

1. 我国农产品溯源管理机制研究

作者：易绣，孙胜元

文献源：科技创新导报，2019

摘要：农产品溯源的管理机制对于溯源工作的有效性至关重要,我国的农产品溯源机制包含了政府层面的溯源体系、供应链层面的溯源体系和溯源技术。本文分析了我国农产品溯源管理机制存在的问题,并提出了相关的政策建议。

2. 基于电子地图的农产品地理二维码设计

作者：郭佳锴，杨联安，周冰婵，马丽娅，于世锋

文献源：农学学报，2019

摘要：传统二维码只是简单的属性信息的表达,缺乏地理信息内容。为研究农产品产地地理信息空间可视化的表达,分析二维码空间属性,提出地理二维码概念,建立产地—产品—消费者的信息查询及溯源渠道。农产品地理二维码通过与电子地图结合的方式,将农产品产地空间位置信息以图像的形式呈现给消费者,满足消费者对农产品来源的关心,实现农产品来源有迹可循、查询方便快捷的目标,维护农产品品牌权益。以陕西紫阳县富硒茶为例,进行了基于电子地图的农产品地理二维码设计。

3. 稳定同位素技术在农产品产地溯源中的应用

作者：唐甜甜，解新方，任雪，张洁，王志东

文献源：食品工业科技，2019

摘要：农产品溯源技术是为保护地区品牌和特色产品，防止食品掺假和食源性疾病扩散，确保食品安全，降低公司召回成本而建立起来的一项追踪检测技术。建立高效的食品溯源体系是保证食品质量安全的关键，近年来稳定同位素技术因其没有放射性、灵敏度高、可靠性强等优点，已广泛用于鉴别不同产地、不同食源的各种农产品，成为追溯食品来源的一种有效手段。文中系统阐述了稳定同位素技术在谷物、肉制品、果蔬、果汁饮料、葡萄酒、乳制品、水产品等各类食品在产地溯源方面的应用，进一步剖析了稳定同位素技术在我国农产品产地溯源中的

优势及局限性，并对其发展前景进行展望，以期为我国农产品溯源体制的建立提供借鉴，推动稳定同位素技术在食品溯源中的应用。

4. 集成供应链视角下农产品质量安全全过程监管体系构建

作者：霍红，詹帅

文献源：中国科技论坛，2019

摘要:本文明确了集成供应链视角下区块链嵌入的农产品质量安全全过程监管体系内涵,确定了监管主体及对象,在集成供应链内外部嵌入公有链、联盟链、私有链,深入探究区块链嵌入后农产品质量安全监管中的产品、信息及利益的动态循环,最终形成农产品质量安全全过程监管体系。研究结果表明,利用区块链技术能够实现集成供应链中各参与主体达成共识并保护其隐私,进一步实现农产品质量溯源并满足不同主体的利益诉求。将区块链技术嵌入农产品质量安全全过程监管体系中能够有效减少质量安全隐患,提升消费者信心。

5. Combination of vintage and new-fashioned analytical approaches for varietal and geographical traceability of olive oils

作者：Ana Sayago,Raúl González-Domínguez,Juan Urbano,Ángeles Fernández-Recamales

文献源：LWT,2019

摘要：There is a great need for having accurate analytical methods able to guarantee the authenticity and traceability of foods, especially for those of high quality and economic value such as extra-virgin olive oil. In the present work, we assessed the potential of combining traditional analytical techniques, based on the characterization of the unsaponifiable fraction, together with novel nuclear magnetic resonance fingerprinting with the aim to investigate the effect of variety and geographical origin on olive oils collected from different locations across the province of Huelva (Spain). Various complementary supervised pattern recognition procedures and machine learning algorithms were then applied to build classification and predictive models. Extra-virgin olive oils were characterized by high concentrations of apparent β-

sitosterol (93% of total sterol content), α-tocopherol (representing almost 91% of the total tocopherol fraction), squalene (90% of the total hydrocarbon content), heptacosanol and eicosane (the most abundant aliphatic alcohol and n-alkane, respectively). Furthermore, olive oil classes could be clearly differentiated on the basis of a characteristic chemical pattern, comprising tocopherols, squalene, sterols (campesterol, stigmasterol, β-sitosterol), aliphatic alcohols (heptacosanol, octacosanol) and some nuclear magnetic resonances related to fatty acid chains.

6. The effect of the seasons on geographical traceability of salmonid based on multi-element analysis

作者：Cui Han,Shuanglin Dong,Li Li,Fayi Wei,Yangen Zhou,Qinfeng Gao

文献源：Food Control，2020

摘要：Salmonid samples collected from two sites in different aquaculture areas (Yantai and Liujiaxia, China) in four seasons were subjected to multi-element analysis. The amounts of 18 elements in fish were measured by inductively coupled plasma atomic emission spectrometry (ICP-AES). The results showed that concentrations of elements in fish from Yantai were stable with seasonal alternation. However, the element concentrations and compositions of fish obtained from Liujiaxia were vulnerable to seasonal change. Principal component analysis (PCA) and canonical discriminant analysis (CDA) were used to visualize the regional and seasonal distribution of samples, and it was determined that CDA was more distinct than PCA. To determine if seasonal effects would influence the discrimination of the geographical origin of salmonid, multivariate statistics including linear discriminant analysis (LDA), k-nearest neighbor (KNN), and partial least squares discriminant analysis (PLS-DA) were used to discriminate fish samples from the two different areas. The results showed that all discrimination techniques could effectively distinguish samples while remaining unaffected by seasonal effects.

7. Geographical origin traceability and species identification of three scallops

(Patinopecten yessoensis, Chlamys farreri, and Argopecten irradians) using stable isotope analysis

作者：Xufeng Zhang,Jinping Cheng,Deming Han,Xinda Zhao,Xiaojia Chen,Yu Liu

文献源：Food Chemistry，2019

摘要：Traceability and authenticity is crucial to the food safety of scallop. The present study investigated the possibility of using stable isotope analysis to identify the origins and species of scallops (Patinopecten yessoensis, Chlamys farreri, and Argopecten irradians) in the coastal areas of China. The δ13C and δ15N values of a total of 575 samples from seven sites around China were determined and additional 150 samples were tested by fisher linear discrimination analysis (LDA) to estimate the accuracy of origin identification and species prediction. The results show that the stable C and N isotope composition differed significantly depending on the origin, season and species of scallops. Meanwhile, the LDA shows that 92% of the samples were correctly classified for origin prediction, and an accuracy of 98.3% was obtained for species prediction. This study reveals that stable isotope ratio is an effective technique to trace the geographical origin and identify the species of scallops.

8. Tracing the geographical origin of burdock root based on fluorescent components using multi-way chemometrics techniques

作者：Leqian Hu,Chunling Yin,Shuai Ma,ZhiminLiu

文献源：Microchemical Journal，2018

摘要：Tracing the geographical origin of burdock root based on fluorescent components using multi-way chemometrics techniques were investigated in this work. Excitation emission spectra were obtained for 150 burdock root of different geographical origins by recording emission from 270 to 510 nm with excitation in the range of 250–500 nm. Multi-way principal components analysis (M-PCA), Multi-way partial least squares discriminant analysis (N-PLS-DA) and Parallel factor analysis coupling with partial least squares discriminant analysis (PARAFAC-PLS-DA) methods were used to decompose the excitation-emission matrices (EEM) datasets and classify the different burdock roots according to their geographical origins. M-PCA model showed the

clustering tendency for the different geographical origin of burdock root samples. N-PLS-DA and PARAFAC-PLS-DA gave more detailed classification results. The accuracy of successful in prediction of the geographical origin of the 150 samples varied between 77.8% and 100% for N-PLS-DA model. For PARFAC-PLS-DA model, the accuracy of the 150 samples varied between 94.7% and 100%. Different figures of merit were used for comparing the classification ability of N-PLS-DA and PARAFAC-PLS-DA model. Comparing with the other two methods, the PARAFAC-PLS-DA classification model, constructed from PARAFAC model scores, got more accurate and reliable classification result. The result showed this method could be applied to trace the geographical origins of burdock root. Further, considering the relative concentration can be acquired by PARAFAC model, the interest of this model emerges from the fact that it maybe be promising to be used to distinguish the quality grade level of the burdock root samples.

本刊主编：杨雅萍　　**本期编辑：**陈晓娜　辛颖
电子邮箱：geockcest@igsnrr.ac.cn　　**电话：**64888145
通信地址：100088　北京 8068 信箱，北京市西城区冰窖口胡同 2 号