



主管：中国商业联合会

主办：北京市食品研究所

出版：中国食品杂志社

编辑：《食品科学》编辑部

社长：王守伟

总编：张立方

副总编：孙勇

主编：白建华

副主编：马永征

责编：刘莉

编辑部：(010)60256914/24/34/44/54

(010)60246915(兼传真)

广告部：(010)60246916

(010)60244966(传真)

网址：www.chnfood.cn

电子信箱：chnfood@chnfood.cn

通信地址：北京市大兴区西红门路10号

邮政编码：100162

国内发行：北京报刊发行局

邮发代号：2-439

国外总发行：中国国际图书贸易总公司

(北京399信箱)

国外代号：M686

国内统一连续出版物号： $\frac{\text{ISSN } 1002-6630}{\text{CN } 11-2206/\text{TS}}$

出版日期：每月15日、25日

排版：百林印刷厂

印刷：中国石油报社印刷厂

国内定价：25元/册

订阅方法：各地邮政局或本刊编辑部

广告经营许可证号：京大工商广字第0007号

法律顾问：张国印 律师 电话：13901354197

知识产权顾问：李桂玲 电话：13801335416

基础研究

- 大粒车前子多糖酸碱稳定性和热稳定性研究 殷军艺等(1)
- 一种苦荞抗真菌肽的纯化及抑菌活性分析 白承之等(4)
- 黄鳍金枪鱼块常用解冻方法的比较 刘燕等(8)
- 20种高粱淀粉特性 田晓红等(13)
- 热处理及葡萄糖酸- δ -内酯对大豆
分离蛋白凝胶特性的影响 于国萍等(21)
- 亚麻籽胶在乳化肠中的应用研究 王宏霞等(26)
- 不同品种小米的直链淀粉含量与快速
黏度分析仪谱特征值关系研究 刘辉等(31)
- 加热时间对大米淀粉特性及抗性淀粉含量的影响 赵娜等(34)
- 云南种植玛咖乙醇提取物的体外抗氧化活性分析 何钊等(39)
- 有机溶剂中脂肪酶催化辛酸辛酯的合成 张凤秀等(44)
- 方波脉冲电穿孔法提高酵母菌
细胞通透性的条件优化 冀照君等(50)
- 猪胰脂肪酶水解花椒籽油动力学及条件优化 徐怀德等(55)
- 韧性饼干脆性评价方法的研究 姜松等(60)
- 鸡骨渣水解用酶的筛选 谢正军等(64)
- 猪肉新鲜度智能检测分级系统研究 郭培源等(68)
- 芦笋皮乙醇提取物的抑菌活性研究 冯翠萍等(73)
- 花生过敏原Ara h 6的分离纯化及鉴定 罗春萍等(76)
- 外源酶缩短羊肉发酵香肠成熟期的效果研究 杨华等(81)
- 植酸及几种酚酸对牛奶蛋白体外消化率的影响 林海伟等(87)
- 桦褐孔菌多糖IOP3a的分离纯化及其
体外抗肿瘤活性研究 陈义勇等(91)
- 酵母细胞液处理对白鲢鱼鱼糜
脂肪氧化和风味的影响 付湘晋等(95)
- 玉竹中性多糖的分离纯化及单糖组成分析 王强等(100)
- 原辅料添加顺序对乳化型香肠品质影响 扶庆权等(103)
- 微波辅助萃取柠檬皮中果胶动力学及热力学研究 章凯等(107)
- 四川牦牛、黄牛主要品种肉的营养成分分析 邱翔等(112)
- 双孢蘑菇多酚氧化酶交联作用对酪蛋白
乳化性及其稳定性的影响 吴进菊等(117)
- 顺磁共振测定姜油树脂的DPPH自由基清除率 葛庆丰等(121)

科 学



第 15 期 总第 388 期

内生多黏类芽孢杆菌纤溶酶的

纯化及其体外溶栓作用 吕凤霞等(231)

大麦芽中淀粉酶系活力的测定及其作用特性 何艳克等(236)

营养卫生

酪蛋白糖巨肽对小鼠肠道免疫系统的影响 李 伟等(240)

刺参对运动小鼠抗疲劳作用的研究 李 冰等(244)

笃斯越橘花青素提取物对 3T3-L1 前脂肪细胞

生长的抑制作用 柳 嘉等(248)

乳杆菌对小鼠脾脏淋巴细胞增殖的影响 李艾黎等(253)

小麦胚芽油胶囊抗氧化作用 宋玉卿等(257)

芹菜素对 3T3-L1 前脂肪细胞增殖及分化作用研究 ... 于华强等(260)

雌激素与山核桃油干预对去卵巢大鼠

海马早老基因 -1 与载脂蛋白 E 基因表达的影响 陈默然等(264)

羊软骨 II 型胶原蛋白对小鼠佐剂性

关节炎抑制作用的研究 刘 媛等(268)

Inhibitory Effect of Triacylglycerols on

Cultured Human Tumor Cells Fu Weichang et al.(271)

龙须菜多糖硫酸化对免疫活性的影响 陈美珍等(278)

专题论述

双孢菇采后感官品质变化的因素分析与

保鲜技术研究进展 孟德梅等(283)

植物提取物抗氧化成分及机理研究进展 谭福新等(288)

茶叶香气影响因子的研究进展 王 力等(293)

壳聚糖及其衍生物的抗氧化性能及应用研究进展 赵 盼等(299)

玉米须食品化及分析研究进展 王翠娜等(304)

我国舰船果蔬保鲜贮藏技术应用研究现状 王红育等(308)

高压技术在膳食纤维改性中的应用 令 博等(312)

《食品科学》自 1980 年创刊以来获得
以下殊荣

● 2003 年全国商业科技进步二等奖

● 2003—2009 年连续七届

百种中国杰出学术期刊

● 中国精品科技期刊

● 中国权威学术期刊

● 中文核心期刊

● 中国科技核心期刊

● 中国期刊方阵双效期刊

● 学位与研究生教育中文重要期刊

● 中国科学引文数据库核心库收录期刊

● 美国《化学文摘》收录期刊

● 《中国期刊网》重点收录期刊

● 中国生物学文献数据库收录期刊

● 《中国学术期刊文摘》(英文版) 收录期刊

声 明

由于我刊被《中国期刊网》全文收录, 故向本刊投稿者若未作声明, 均视为其文稿刊登后可供以上数据库收录、转载并上网发行; 其作者文章著作权使用费与稿酬一次付清, 本刊不再另付其他报酬。若作者不同意自己的文章在以上数据库刊载, 请投稿时在稿件中注明。



Contents

FOOD

2010 Vol.31 No.15

Organization in Charge:

China General Chamber of Commerce (CGCC)

Sponsored by: Beijing Food Research Institute

Published by: China Food Publishing Company

Edited by: Editorial Department of *Food Science Journal*

President: Wang Shouwei

Editor-in-Chief: Zhang Lifang

Deputy Editor-in-Chief: Sun Yong

Chief Editor: Bai Jianhua

Deputy Chief Editor: Ma Yongzheng

Responsible Editor: Liu Li

Tel of Editorial Department:

+86 10 60256914/24/34/44/54-8006

+86 10 60246915 (Fax)

Tel of Advertising Department:

+86 10 60246916

+86 10 60244966 (Fax)

Website: www.chnfood.cn

E-mail: chnfood@chnfood.cn

Address: No.10 Xihongmen Road, Daxing

District, Beijing, China

Postcode: 100162

Distributed by: Beijing Post Bureau

Issue Code: 2-439

Overseas Distributed by:

China International Book Trading Corporation

(P.O. Box 399, Beijing 100044, China)

Overseas Code: M686

Domestic Standard Serial Number: ISSN 1002-6630

CN 11-2206/TS

Publication Date: the 15th and 25th of Every Month

Overseas Price: US \$ 15 per Issue

pH and Thermal Stability of a Polysaccharide Fraction from <i>Plantago asiatica</i> L. Seeds	Yin Junyi et al.(1)
Purification and Activity of an Antifungal Peptide from the Seeds of Tartary Buckwheat (<i>Fagopyrum tataricum</i>)	Bai Chengzhi et al.(4)
Effect of Thawing Methods on the Quality of Yellowfin Tuna Chunk	Liu Yan et al.(8)
Properties of Sorghum Starches from Twenty Varieties in China	Tian Xiaohong et al.(13)
Effects of Heating Treatment and Glucono- δ -lactone-induced Acidification on the Gel Properties of Soybean Protein Isolate	Yu Guoping et al.(21)
Application of Flaxseed Gum in Emulsion-type Sausages	Wang Hongxia et al.(26)
Relationships between Amylose Content and Gelatinization Characteristics of Different Varieties of Millet	Liu Hui et al.(31)
Effect of Heating Time on Starch Properties and Content of Resistant Starch in Rice	Zhao Na et al.(34)
<i>in vitro</i> Antioxidant Activity of Ethanol Extract of Maca (<i>Lepidium meyenii</i> Walpers) Cultivated in Yunnan	He Zhao et al.(39)
Enzymatic Synthesis of Caprylic Caprylate in an Organic Solvent	Zhang Fengxiu et al.(44)
Optimization of Square-wave Electroporation for Increasing the Permeability of Yeast Cells	Ji Zhaojun et al.(50)
Kinetics and Optimization of Porcine Pancreatic Lipase-catalyzed Hydrolysis of Prickly Ash Seed Oil	Xu Huaide et al.(55)
Methods for the Evaluation of Biscuit Crispy	Jiang Song et al.(60)
An Optimum Protease for the Hydrolysis of the Residue Left after High Pressure Cooking of Chicken Bone	Xie Zhengjun et al.(64)
An Intellectual Rating System for Pork Freshness	Guo Peiyuan et al.(68)
Anti-microbial Activity of Ethanol Extract from <i>Asparagus officinalis</i> Peel	Feng Cuiping et al.(73)
Purification and Identification of Peanut Allergen Ara h 6	Luo Chungping et al.(76)
Effect of Exogenous Enzymes on Shortening Ripening Period of Fermented Mutton Sausage	Yang Hua et al.(81)
Effects of Phytic Acid and Phenolic Compounds on the <i>in vitro</i> Digestibility of Milk Proteins	Lin Haiwei et al.(87)
Isolation, Purification and Anti-tumor Activity of a Polysaccharide, IOP3a from <i>Inonotus obliquus</i>	Chen Yiyong et al.(91)
Effect of Wall-free Cells of Yeast on Lipid Oxidation and Flavor of Silver Carp Surimi	Fu Xiangjin et al.(95)
Isolation, Purification and Monosaccharide Analysis of a Neutral Polysaccharide from <i>Polygonatum odoratum</i> (Mill) Druce	Wang Qiang et al.(100)
Effect of Sequential Additions of Raw and Subsidiary Materials on the Quality of Emulsion-type Chicken Sausages	Fu Qingquan et al.(103)
Microwave-assisted Extraction Kinetics and Thermodynamics of Pectin from Lemon Peel	Zhang Kai et al.(107)
Nutritional Composition Analysis of Meat from Yak and Yellow Cattle in Sichuan	Qiu Xiang et al.(112)
Emulsify Capacity and Stability of Cross-linked Casein with Polyphenol Oxidase from <i>Agaricus bisporus</i>	Wu JinJu et al.(117)
Using ESR for Measuring DPPH Free Radical Scavenging Activity of Gingerol Oleoresin	Ge Qingfeng et al.(121)
Effect of a Combination of Polyphenolic Extracts from <i>Herba Gei</i> and <i>Herba Lysimachiae</i> on Antioxidant Stability of Kiwifruit Juice	Ouyang Yuzhu et al.(126)
Optimum Mixing Ratio for Water Extract from <i>Flos Sophorae</i> <i>Immaturus</i> and Ethanol Extract from <i>Radix Glycyrrhizae</i> for Protection of Processed Foods against Lipid Oxidation and Antioxidant Properties of the Mixture	Zhang Fengqing et al.(130)



Stability of the Red Pigment from <i>Brassica campestris</i> L.	Li Wei et al.(135)
Methylation of (-)-Epigallocatechin-3-gallate (EGCG)	Li Haipeng et al.(139)
<i>in vitro</i> Antioxidant Effect of Ethanol Extract from Gongshui White Pomelo Peel	Wang Wei et al.(143)
Evaluation on the Proteolysis of a Surface <i>Mucor</i> -ripened Cheese during Ripening	Zhang Na et al.(149)
Effects of β -conglycinin and Glycated β -conglycinin on the Thermal Aggregation of Glycinin	Sun Weiwei et al.(159)
Preparation and Separation of ACE Inhibitory Hydrolysates from Rape Bee Pollen	Li Tianjiao et al.(163)
Division of Antioxidant Functional Regions of Flavonoids Based on Quantum Chemistry Analysis	Liu Benguo et al.(167)
Cloning of Glucose Isomerase Gene from <i>Actinoplanes missouriensis</i> and Its Expression in <i>Escherichia coli</i>	Wang He et al.(171)
Isolation, Purification and Solubility of Antibacterial Substances from Fermentation Supernatant of Marine <i>Streptomyces parvus</i> DY2741	Liu Wei et al.(177)
Optimization of Fermentation Conditions for Nattokinase Production in Solid-state Fermentation by <i>Bacillus subtilis</i> Natto Using Apple Pomace as Substrate	Cang Yipeng et al.(181)
Production Comparison of Small Peptides in Milk Fermented by Different Strains of <i>Lactobacillus helveticus</i>	Yin Jie et al.(186)
Identification of IgE-binding Epitopes on β -lactoglobulin	Cong Yanjun et al.(190)
Construction of <i>Nisin-rbLF-N</i> Fusion Gene and Its Expression in <i>Escherichia coli</i>	Yuan Xiaoyu et al.(194)
Isolation and Screening of a Gamma-Aminobutyric Acid-producing Lactic Acid Bacterial (LCB) Strain from Fresh Milk	Li Yuanhong et al.(198)
Preliminary Investigation on the Biosynthesis of Recombinant Peanut Allergen Ara h 2	Hu Chunqiu et al.(203)
Contamination Pathways of Raw Chicken by <i>Salmonella enteritidis</i> in Slaughterhouses	Li Jixiang et al.(208)
Screening and Preliminary Identification of Dominant Bacteria in Chinese-style Cooked Salted Chicken	Wang Qindan et al.(212)
Effects of Culture Conditions of Mycelial Pellet Formation and L-Lactic Acid Production by <i>Rhizopus oryzae</i>	Jiang Xuewei et al.(216)
Preparation of Lyophilized <i>Bifidobacterium bifidum</i> Powder	Zhang Fan et al.(221)
Preparation of Haptens by Two Different Methods for Immunoassay Determination of Florfenicol and Their Identification	Zhao Pengling et al.(225)
Purification and Thrombolytic Effect <i>in vitro</i> of a Novel Fibrinolytic Enzyme Produced by Endophytic <i>Bacterium Paenibacillus polymyxa</i> EJS-3	Lü Fengxia et al.(231)
Activity Determination and Characteristics of Malt Amylases	He Yanke et al.(236)
Effect of Casein-glycomacropeptide on Intestinal Mucosal Immunity in Mice	Li Wei et al.(240)
Anti-fatigue Effect of Sea Cucumber <i>Stichopus japonicus</i> in Mice	Li Bing et al.(244)
Growth Inhibition Effect of Bog Bilberry Anthocyanin Extract on 3T3-L1 Preadipocytes	Liu Jia et al.(248)
Effect of Seven <i>Lactobacilli</i> Strains on the Proliferation of Mouse Spleen Lymphocytes <i>in vitro</i>	Li Aili et al.(253)
Antioxidant Effect of Wheat Germ Oil Capsules in Mice	Song Yuqing et al.(257)
Effect of Apigenin on the Proliferation and Differentiation of 3T3-L1 Preadipocytes	Yu Huaqiang et al.(260)
Intervention Effect of Estrogen Combined with Pecan Oil on the Gene Expressions of Alzheimer gene-1 and Apolipoprotein E Gene in Ovariectomized Rat Hippocampus	Chen Moran et al.(264)
Inhibitory Effect of Type II Collagen from Sheep Cartilage on Adjuvant Arthritis in Mice	Liu Yuan et al.(268)
Inhibitory Effect of Triacylglycerols on Cultured Human Tumor Cells	Fu Weichang et al.(271)
Immunoregulatory Effects of Sulfurized, Desulfurized and Native <i>Gracilaria lemaneiformis</i> Polysaccharides in Immunosuppressive Mice	Chen Meizhen et al.(278)
Research Progress in Analysis of Factors Affecting Sensory Quality and Preservation Techniques for Post-harvested <i>Agaricus bisporus</i>	Meng Demei et al.(283)
Research Advances in Antioxidant Composition of Botanical Extracts and Their Action Mechanisms	Tan Pinxin et al.(288)
Research Progress in Affecting Factors of Tea Aroma	Wang Li et al.(293)
Research Progress of Antioxidant Properties and Applications of Chitosan and Its Derivatives	Zhao Pan et al.(299)
Application and Analysis of Corn Silk as Food: A Review	Wang Cuina et al.(304)
Current State of Applications of Preservation Techniques for Fruits and Vegetables Carried onboard Vessels ...	Wang Hongyu et al.(308)
Application of High-Pressure Technology for the Modification of Dietary Fiber: A Review	Ling Bo et al.(312)