

## 食品総合研究所研究報告 79号 表紙・目次・奥付

雑誌名	食品総合研究所研究報告
巻	79
発行年	2015-03-01
URL	<a href="http://id.nii.ac.jp/1578/00002937/">http://id.nii.ac.jp/1578/00002937/</a>

# 食品総合研究所研究報告

REPORT OF NATIONAL FOOD RESEARCH INSTITUTE

# 79

平成27年3月  
March, 2015

独立行政法人 農業・食品産業技術総合研究機構

## 食品総合研究所

NARO Food Research Institute (NFRI)

National Agriculture and Food Research Organization (NARO)

Tsukuba, Ibaraki 305-8642, Japan

この印刷物は、環境物品等の調達に関する法律（グリーン購入法）に基づく基本方針の判断基準を満足する古紙配合率100%、白色度70%以下の非塗工印刷用紙を使用しています。但し、表紙は除く（古紙は、新聞古紙等の市中回収古紙を100%原料として使用）。

# 食品総合研究所研究報告

第 79 号

平成 27 年 3 月

独立行政法人 農業・食品産業技術総合研究機構

食品総合研究所

# 食品総合研究所研究報告

第 79 号

所長	大谷敏郎			
編集委員会				
委員長	矢部希見子			
委員	矢野裕之	稲津康弘		
	八巻幸二	逸見林		
	中村敏英	小		
	伊藤康博			
事務局	濱野保文			

REPORT OF NATIONAL FOOD RESEARCH INSTITUTE

No. 79

President and Director General

OHTANI Toshio

Editorial Board

Chairman YABE Kimiko

Members YANO Hiroyuki

INATSU Yasuhiro

YAMAKI Kohji

HEMMI Hikaru

NAKAMURA Toshihide

KOBAYASHI Isao

ITO Yasuhiro

Secretary HAMANO Yasufumi

**NARO Food Research Institute (NFRI)**

National Agriculture and Food Research Organization (NARO)

Tsukuba, Ibaraki 305-8642, Japan

## 食品総合研究所研究報告（第79号）目次

### 報 文

Convenient preparation of template fungal genomic DNA for polymerase chain reaction and temporal temperature gradient gel electrophoresis analyses of fungal diversity in Japanese fermented soybean paste, <i>miso</i> 鈴木 聡, 柏木 豊, 楠本 憲一	1
Effect of sorghum flour on glutathione-rice bread 矢野 裕之, 福井 明子	9

### 研究ノート

茨城県つくば市の屋外でトラップに捕獲された貯穀害虫の記録 古井 聡, 今村 太郎, 宮ノ下 明大	19
ワークショップを通じた食品関連事業者等の自主衛生管理手法に関する知識の向上（第2報） 川崎 晋, 持田 麻里, 大畑 由紀子, 齋藤 美枝, 野澤 博美, 稲津 康弘	25
国産豆腐より分離された腸球菌の特性 細谷 幸恵, 大畑 由紀子, 川崎 晋, 稲津 康弘	31
Purification of Dehydrin Protein from Buckwheat Seed ( <i>Fagopyrum esculentum</i> cv. <i>Kitawase</i> ) 門間 美千子	35
巨大糖タンパク質プロテオグリカンの小角 X 線散乱測定による特性解析 渡邊 康	41

### 技術報告

ひじき粉末中の総ヒ素, カドミウム, 鉛及び必須無機元素の 2008 年度技能試験結果 内藤 成弘, 成川 知弘, 安井 明美	47
食品害虫サイト用に開発したアクセス解析プログラムとそのツール化 曲山 幸生, 七里 与子, 宮ノ下 明大, 今村 太郎, 古井 聡, 和田 有史, 増田 知尋	57
宿主株が異なる <i>Saccharomyces cerevisiae</i> 組換え体におけるキシロース発酵能の比較 榊原 祥清, 王 曉輝, 徳安 健	67

### 国連大学生研究成果

Purification of Benzoic acid from Cranberry juice using Nanofiltration Technique Xin LU	77
ENCAPSULATION OF CLOVE OIL USING MICROCHANNEL EMULSIFICATION AND A HOMOGENIZATION METHOD Nanik Purwanti	78
The study on a bacterial adaptation by gene amplification Wannasiri Wannarat	79

Genetic improvement of secondary metabolite production of an industrial bacterial strain Le Thi Thu Hong .....	80
Effect of packaging material on shelf life, quality and gene expression of tomatoes Thiraviam Vanitha .....	81
<b>抄 録</b>	
《企画管理部》	
Effect of high-oxygen packaging on respiratory physiology and sensorial qualities of fresh shiitake mushrooms ( <i>Lentinus edodes</i> ) Yanjie Li, Yutaka Ishikawa, Takaaki Satake, Hiroaki Kitazawa, Xiaoli Qiu .....	82
エダマメの微細孔フィルムを用いた最適なMA包装条件 勝見 直行, 石川 豊, 北澤 裕明, 遠藤 昌幸, 鬼島 直子, 安達 あい .....	82
《放射性物質影響研究コーディネーター》	
うどん調理における放射性セシウムの動態解析 八戸 真弓, 内藤 成弘, 明石 肇, 等々力節子, 松倉 潮, 川本 伸一, 濱松 潮香 .....	83
《食品機能研究領域》	
O-Methylated Theaflavins Suppress the Intracellular Accumulation of Triglycerides from Terminally Differentiated Human Visceral Adipocytes Yoshihisa Tanaka, Masanobu Kirita, Satoshi Miyata, Yuko Abe, Motoyuki Tagashira, Tomomasa Kanda, Mari Maeda-Yamamoto .....	83
Green tea extract containing a highly absorbent catechin prevents diet-induced lipid metabolism disorder Takashi Suzuki, Motofumi Kumazoe, Yoonhee Kim, Shuya Yamashita, Kanami Nakahara, Shuntaro Tsukamoto, Masako Sasaki, Takatoki Hagihara, Yukari Tsurudome, Yuhui Huang, Mari Maeda-Yamamoto, Yuki Shinoda, Wataru Yamaguchi, Koji Yamada, Hirofumi Tachibana .....	84
Effects of Bathing in Hot Springs on the Absorption of Green Tea Catechins: A Pilot Study Shinya Hayasaka, Yasuaki Goto, Mari Maeda-Yamamoto .....	84
ラットにおける「べにふうき」エキスの食後中性脂肪の上昇抑制作用 江頭祐嘉合, 蒲原 智子, 山口 航, 入江ひとみ, 豊田 唯, 花村 学, 平井 静, 篠田 有希, 山本(前田)万里 .....	85
'Sunrouge', a new tea cultivar with high anthocyanin Atsushi Nesumi, Akiko Ogino, Katsuyuki Yoshida, Fumiya Taniguchi, Mari Maeda-Yamamoto, Junichi Tanaka, Akira Murakami .....	85
Low and medium but not high doses of green tea polyphenols ameliorated dextran sodium sulfate-induced hepatotoxicity and nephrotoxicity Hirofumi Inoue, Mari Maeda-Yamamoto, Atsushi Nesumi, Akira Murakami .....	86
Human Clinical Studies of Tea Polyphenols in Allergy or Life Style-related Diseases Mari Maeda-Yamamoto .....	86
Investigation of $\beta$ -cryptoxanthin fatty acid ester compositions in citrus fruits cultivated in Japan Yusuke Wada, Atsuki Matsubara, Takato Uchikata, Yugo Iwasaki, Satochi Morimoto, Katsuta Kan, Tetsuya Ookura, Eiichiro Fukusaki, Takeshi Bamba .....	87

Distribution of Starch-degrading Enzymes in Rice Grains of different cultivars and Elution Behavior during Cooking Mika Tsuyukubo, Tetsuya Ookura, Midori Kasai .....	87
Angiotensin I-converting enzyme inhibitory activities of Chinese fermented soypaste and estimation of inhibitory substances Fengjuan Li, Mayumi Ohnishi-Kameyama, Yoko Takahashi, and Kohji Yamaki .....	88
Tea polyphenols as novel and potent inhibitory substances against renin activity Fengjuan Li, Mayumi Ohnishi-Kameyama, Yoko Takahashi, and Kohji Yamaki .....	88
Inhibitory Effect of Catechin-Related Compounds on Renin Activity Fengjuan Li, Yoko Takahashi, and Kohji Yamaki .....	89
産地および収穫時期の違いがホウレンソウ・小松菜・トマト・キュウリの抗酸化能に及ぼす影響 若木 学, 渡辺 純, 石川(高野) 祐子 .....	89
10-Hydroxy-2-decenoic acid, a unique medium-chain fatty acid, activates 5'-AMP-activated protein kinase in L6 myotubes and mice. Masathito Takikawa, Aya Kumagai, Harumi Hirata, Minoru Soga, Yoko Yamashita, Manabu Ueda, Hitoshi Ashida, Takanori Tsuda .....	89
北海道産タマネギ品種のケルセチン含有量と抗酸化能の差異 渡辺 純, 室 崇人, 柳田 大介, 山岸 喬, 石川(高野) 祐子 .....	90
Improvement of the lipophilic-oxygen radical absorbance capacity (L-ORAC) method and single-laboratory validation Jun Watanabe, Tomoyuki Oki, Jun Takebayashi, Koji Yamasaki, Yuko Takano-Ishikawa, Akihiro Hino, Akemi Yasui .....	90
ブラッドオレンジ ‘タロッコ’ 果肉中のアントシアニンおよびフラボノイド含量が水溶性酸素ラジカル吸収能 (H-ORAC) に及ぼす影響 伊藤 史郎, 石々川英樹, 清水 篤, 菊池 毅洋, 毛利 幸喜, 森重 陽子, 石川(高野) 祐子 .....	91
Total phenol content of different varieties of brinjal ( <i>Solanum melongena</i> L.) and potato ( <i>Solanum tuberosum</i> L.) growing in Bangladesh Nazma Shaheen, Ali Abbas Mohammad Kurshed, Kazi Muhammad Rezaul Karim, Md Mohiduzzaman, Cadi Parvin Banu, Momtaz Begum, Yuko Takano Ishikawa .....	91
牛乳アレルギータンパク質のステンレストレー上での加熱反応生成物 新本 洋士, 市川由佳里, 永田 紗織, 三浦 愛美, 長縄 康範, 石川(高野) 祐子 .....	92
Possible role of S-equol on bone loss via amelioration of inflammatory indices in ovariectomized mice Yoriko Nishide, Miki Tadaishi, Masuko Kobori, Yuko Tosen, Michiko Kato, Masaki Inada, Chisato Miyaura, Yoshiko Ishimi .....	92
Corn oil and milk enhance the absorption of orally administered allyl isothiocyanate in rats Katsunari Ippoushi, Hiroshi Ueda, Atsuko Takeuchi .....	93
Differences in Cell-wall Polysaccharide Degradation during Softening Process in Two Cultivars of Japanese Apricot Fruits Yasuhisa Tsuchida, Hiroshi Yakushiji, Takaaki Oe, Keiichi Negoro, Nobuki Gato, Tatsuya Kotani, Yuriko Onishi, Takamichi Kobata, Motoi Tamura .....	93



Xylitol affects the intestinal microbiota and metabolism of daidzein in adult male mice Motoi Tamura, Chigusa Hoshi, Sachiko Hori .....	94
Clerk agent promotes consumers' ethical purchase intention in unmanned purchase environment Atsushi Kimura, Naoki Mukawa, Masahide Yuasa, Tomohiro Masuda, Mana Yamamoto, Takashi Oka, Yuji Wada .....	94
うま味を嗜好するマウスを用いたうま味修飾物質の力価測定 河合 崇行, 日下部裕子 .....	95
Perception of elasticity in the kinetic illusory object with phase differences in inducer motion Tomohiro Masuda, Kazuki Sato, Takuma Murakoshi, Ken Utsumi, Atsushi Kimura, Nobu Shirai, So Kanazawa, Masami K. Yamaguchi, Yuji Wada .....	95
Memory color effect induced by familiarity of brand logos Atsushi Kimura, Yuji Wada, Tomohiro Masuda, Sho-ichi Goto, Daisuke Tsuzuki, Haruo Hibino, Dongsheng Cai, Ippeita Dan .....	96
Differential Functioning of Retrieval/Comparison Processing in Detection of the Presence and Absence of Change Takuma Murakoshi, Masako Hisa, Yuji Wada, Yoshihisa Osada .....	96
Infants' perception of curved illusory contour with motion Kazuki Sato, Tomohiro Masuda, Yuji Wada, Nobu Shirai, So Kanazawa, Masami K. Yamaguchi .....	97
Glossiness and Perishable Food Quality: Visual Freshness Judgment of Fish Eyes Based on Luminance Distribution Takuma Murakoshi, Tomohiro Masuda, Ken Utsumi, Kazuo Tsubota, Yuji Wada .....	97
A trial of human electromyography to evaluate texture of softened foodstuffs prepared with freeze-thaw impregnation of macerating enzymes Sayaka Nakatsu, Kaoru Kohyama, Yayoi Watanabe, Fumiyo Hayakawa, Kenya Shibata, Koji Sakamoto, Mitsuya Shimoda .....	98
Linear and non-linear rheology of mixed polysaccharide gels. Pt. II. Extrusion, compression, puncture and extension tests and correlation with sensory evaluation Tom Brenner, Fumiyo Hayakawa, Sayaka Ishihara, Yoshimi Tanaka, Makoto Nakauma, Kaoru Kohyama, Piyada Achayuthakan, Takahiro Funami, Katsuyoshi Nishinari .....	98
Effects of rice flour blends on bread texture and staling Tomoko Sasaki, Kaoru Kohyama, Kanae Miyashita, Tomoya Okunishi .....	99
Characterization of eating difficulty by sensory evaluation of hydrocolloid gels Fumiyo Hayakawa, Yukari Kazami, Sayaka Ishihara, Satomi Nakao, Makoto Nakauma, Takahiro Funami, Katsuyoshi Nishinari, Kaoru Kohyama .....	99
Parameters of texture profile analysis Katsuyoshi Nishinari, Kaoru Kohyama, Hitoshi Kumagai, Takahiro Funami, Malcolm C. Bourne .....	100
2バイトテクスチャー試験 (TPA) で得られるパラメータと超音波パルスドブロー法で求められる咽頭部流速と の関係 谷米(長谷川) 温子, 小倉 聖美, 秋間 彩香, 神山かおる, 熊谷日登美, 熊谷 仁 .....	100

Ultrasound analysis of the effects of food bolus volume on tongue movement at the initiation of swallowing Zhihong Gao, Mitsuru Taniwaki, Hiromi Shimada, Sayaka Ishihara, Makoto Nakauma, Takahiro Funami, Kaoru Kohyama .....	101
《食品安全研究領域》	
Photochemical method to evaluate oxidation levels in heat-treated vegetable oil: comparison with peroxide-value and acid-value Hiromi Kameya, Mistuko Ukai .....	101
Effect of Gamma Irradiation on Soybean Allergen Levels. Tatsuya Moriyama, Erika Yano, Kazumi Kitta, Shin-ishi Kawamoto, Yukio Kawamura, Setsuko Todoriki .....	102
Arabidopsis thalianaにおけるガンマ線照射誘導過酸化水素蓄積と脂質過酸化の軽減にカタラーゼCAT2は関与しない Amena Sultana, 南 育子, 松島 大貴, Mohammad Issak, 中村 宜督, 等々力節子, 村田 芳之 .....	102
Tribolium castaneumの幼虫と成虫へのガンマ線の影響 Amena Sultana, 南 育子, 市場 隆治, Mohammad Issak, 多田 幹朗, 中村 宜督, 宮竹 貴久, 等々力節子, 村田 芳之 .....	103
振とう抽出法による放射線照射した食肉およびサーモンにおける2-アルキルシクロブタノン類の検知 堤 智昭, 足立 利華, 高附 巧, 根井 大介, 亀谷 宏美, 等々力節子, 松田りえ子, 手島 玲子 .....	103
Comparison of scavenging capacities of vegetables by ORAC and EPR Hiromi Kameya, Jun Watanabe, Yuko Takano-Ishikawa, Setsuko Todoriki .....	104
キノコ熱水抽出物のE S Rスピントラップ法によるラジカル捕捉活性評価とORAC法 菅野 友美, 川村 翔栄, 原田栄津子, 亀谷 宏美, 鶴飼 光子, 大澤 俊彦 .....	104
Radiation-induced nitric oxide mitigates tumor hypoxia and radioresistance in a murine SCCVII tumor model Masaki Nagane, Hironobu Yasui, Tohru Yamamori, Songji Zhao, Yuji Kuge, Nagara Tamaki, Hiromi Kameya, Hide Nakamura, Hirotada Fujii, Osamu Inanami .....	105
ペンタフルオロフェニルカラムを用いたトリコテセン系カビ毒のLC-MS/MS高感度一斉分析法 田村 昌義, 中川 博之, 宇山 敦生, 望月 直樹 .....	105
Detection of masked mycotoxins derived from type A trichothecenes in corn by high-resolution LC-Orbitrap mass spectrometer Hiroyuki Nakagawa, Shigeru Sakamoto, Yuki Sago, Masayo Kushiro, Hitoshi Nagashima .....	106
Detection of Type A Trichothecene Di-Glucosides Produced in Corn by High-Resolution Liquid Chromatography-Orbitrap Mass Spectrometry Hiroyuki Nakagawa, Shigeru Sakamoto, Yuki Sago, Hitoshi Nagashima .....	106
味噌に混入した糞便汚染指標菌の検出方法の検討 細谷 幸恵, 大畑由紀子, 川崎 晋, 稲津 康弘 .....	107
Real-time PCRを用いた牛乳および生乳中のSalmonella増殖の特性評価と増殖挙動のモデル化 川崎 晋, 清水 茂雅, 小関 成樹, 稲津 康弘 .....	107

ワークショップを通じた食品関連事業者等の自主衛生管理手法に関する知識の向上 川崎 晋, 持田 麻里, 大畑由紀子, 齋藤 美枝, 野澤 博美, 稲津 康弘	107
Evaluation of non-bacterial factors contributing to histamine accumulation in fish Daisuke Nei	108
Validation of hot water and chlorine treatments to inactivate pathogens inoculated on mung bean seeds: Influence of the seed production area DAISUKE NEI, Md. LATIFUL BARI, KATSUYOSHI ENOMOTO	108
穀物乾燥調製・貯蔵施設における玄米ベイトトラップによる貯穀害虫およびその天敵相の調査 今村 太郎, 宮ノ下明大, 古井 聡, 宮武 和史, 平井 佑佳, 田井 裕子, 中北 宏	108
粒状アーモンドチョコレート製品におけるノシメマダラメイガ <i>Plodia interpunctella</i> 幼虫の被害と発育 宮ノ下明大, 今村 太郎, 古井 聡, 西田 典由	109
マンション周辺における性フェロモントラップで捕獲されたノシメマダラメイガ <i>Plodia interpunctella</i> の個体数と分布 宮ノ下明大, 今村 太郎, 古井 聡	109
《食品分析研究領域》 Comparative analysis of flagellin glycans among pathovars of phytopathogenic <i>Pseudomonas syringae</i> Tadashi Ishii, Mitsuru Yoshida, Fumiko Taguchi, Yuki Ichinose, Hiroshi Ono	110
Hordatine A $\beta$ -D-glucopyranoside from ungerminated barley grain Noriko Kohyama, Hiroshi Ono	110
Isolation and identification of phenolic compounds accumulated in brown rice grains ripened under high air temperature Hiroshi Nakano, Hiroshi Ono, Norio Iwasawa, Toshiyuki Takai, Yumiko Arai-Sanoh, Motohiko Kondo	111
Structure and biosynthesis of scabichelin, a novel tris-hydroxamate siderophore produced by the plant pathogen <i>Streptomyces scabies</i> 87.22 Shinya Kodani, Joanna Bicz, Lijiang Song, Robert J. Deeth, Mayumi Ohnishi-Kameyama, Mitsuru Yoshida, Kozo Ochi, Gregory L. Challis	111
元素分析計-同位体比質量分析計 (EA-IRMS) によるうなぎ加工品試料の炭素・窒素・酸素安定同位体比分析の試験所間比較 鈴木彌生子, 一色 摩耶, 佐藤 里恵, 中下留美子	112
安定同位体比分析によるうなぎ加工品の原料原産地判別 一色 摩耶, 中村 哲, 高嶋 康晴, 寺田 昌市, 鈴木彌生子	112
安定同位体比分析および微量元素分析による湯通し塩蔵ワカメの産地判別 鈴木彌生子, 國分 敦子, 絵面 智宏, 中山 和美	113
塩尻市における牛舎周辺のツキノワグマ ( <i>Ursus thibetanus</i> ) 捕獲個体の家畜飼料依存 中下留美子, 岸元 良輔, 鈴木彌生子, 瀧井 暁子, 林秀 剛, 泉山 茂之	113
長野市街地ツキノワグマ出没個体は人里に依存していたか? 安定同位体比分析による食性解析 泉山 茂之, 中下留美子, 岸元 良輔, 鈴木彌生子, 林秀 剛, 瀧井 暁子	114

Responses of carbon and oxygen stable isotopes in rice grain ( <i>Oryza sativa</i> L.) to an increase in air temperature during grain filling in the Japanese archipelago Fumikazu Akamatsu, Yaeko Suzuki, Rumiko Nakashita, Takashi Korenaga .....	114
Inversion of the stereochemistry around the sulfur atom of the axial methionine side chain through alteration of amino acid side chain packing in <i>Hydrogenobacter thermophilus</i> cytochrome c552 and its functional consequences Hulin Tai, Ken Tonegawa, Tomokazu Shibata, Hikaru Hemmi, Nagao Kobayashi, Yasuhiko Yamamoto .....	115
Objective evaluation of astringent and umami taste intensities of matcha using a taste sensor system Tomomi Ujihara, Nobuyuki Hayashi, Hidekazu Ikezaki .....	115
Recognition of caffeine by a water-soluble acyclic phane compound Nobuyuki Hayashi, Tomomi Ujihara, Shigeki Jin .....	116
Objective evaluation methods for the bitter and astringent taste intensities of black and oolong teas by a taste sensor Nobuyuki Hayashi, Tomomi Ujihara, Ronggang Chen, Kazue Irie, Hidekazu Ikezaki .....	116
Construction of Energy transfer Pathways Self-Assembled from DNA-Templated Stacks of Anthracene Rika Iwaura, Hiroharu Yui, Yuu Someya, Mayumi Ohnishi-Kameyama .....	117
調理条件が味噌汁のフラン量に及ぼす影響 箭田 浩士, 亀山真由美 .....	117
Detection of eggs in the living white grub beetle <i>Dasylepida ishigakiensis</i> (Coleoptera: Scarabaeidae) by magnetic resonance imaging Yasuyo Sekiyama, Akemi K. Horigane, Nao Fujiwara-Tsujii, Hiroe Yasui, Hiroshi Ono .....	118
Observations of the migration of adult <i>Dasylepida ishigakiensis</i> (Coleoptera: Scarabaeidae) from belowground to the soil surface and their reproductive status by MRI Nao Fujiwara-Tsujii, Hiroe Yasui, Yasuyo Sekiyama, Akemi K. Horigane, Hiroshi Ono, Norio Arakaki .....	118
Pulse laser photolysis of aqueous ozone in the microsecond range studied by time-resolved far-ultraviolet absorption spectroscopy Takeyoshi Goto, Yusuke Morisawa, Noboru Higashi, Akifumi Ikehata, Yukihiro Ozaki .....	119
Oxide surface plasmon resonance for a new sensing platform in the near-infrared range Hiroaki Matsui, Wasanthamala Badalawa, Akifumi Ikehata, Hitoshi Tabata .....	119
生殖組織内における耐凍剤分布の計測法 都 甲洙, 佐藤 嘉兵, 斐 英煥, 池羽田晶文, 荒木 徹也, 上野 茂昭, 白 檉了 .....	120
精米粉末中のカドミウム及び必須無機元素の2008年度技能試験結果 内藤 成弘, 門倉 雅史, 安井 明美 .....	120
Identification of possible technical problems in determination of the major inorganic constituents of brown-rice flour by evaluating proficiency test results Shin-ichi Miyashita, Kazumi Inagaki, Shigehiro Naito, Kumiko Shindoh, Tomohiro Narukawa, Yanbei Zhu, Takayoshi Kuroiwa, Akiharu Hioki, Toshiyuki Fujimoto, Koichi Chiba .....	121

Inter-laboratory study of an LC-MS/MS method for simultaneous determination of deoxynivalenol and its acetylated derivatives, 3-acetyl-deoxynivalenol and 15-acetyl-deoxynivalenol in wheat Tomoya Yoshinari, Toshitsugu Tanaka, Eiichi Ishikuro, Masakazu Horie, Toshihiro Nagayama, Masahiro Nakajima, Shigehiro Naito, Takahiro Ohnishi , Yoshiko Sugita-Konishi	121
Inter-Laboratory Study of an LC-MS/MS Method for Simultaneous Determination of Fumonisin B1, B2 and B3 in Corn Tomoya YOSHINARI, Toshitsugu TANAKA, Eiichi ISHIKURO, Masakazu HORIE, Toshihiro NAGAYAMA, Masahiro NAKAJIMA, Shigehiro NAITO, Takahiro OHNISHI , Yoshiko SUGITA-KONISHI	122
Development of direct real-time PCR system applicable to a wide range of foods and agricultural products Junichi Mano, Shuko Hatano, Satoshi Futo, Yasutaka Minegishi, Kenji Ninomiya, Kosuke Nakamura, Kazunari Kondo, Reiko Teshima, Reona Takabatake, Kazumi Kitta	122
Development of PCR primers designed for sensitive detection of genetically modified potato DNA in processed foods Kosuke Nakamura, Yumi Minamitake, Kaori Nakamura, Tomoko Kobayashi, Akio Noguchi, Reona Takabatake, Kazumi Kitta, Hiroyuki Hashimoto, Hiroshi Kawakami, Kazunari Kondo, Reiko Teshima, Hiroshi Akiyama	123
Identification and detection of genetically modified papaya resistant to papaya ringspot virus strains in Thailand Kosuke Nakamura, Kazunari Kondo, Tomoko Kobayashi, Akio Noguchi, Kiyomi Ohmori, Reona Takabatake, Kazumi Kitta, Hiroshi Akiyama, Reiko Teshima, Tomoko Nishimaki-Mogami	123
Interlaboratory validation study of an event-specific real-time polymerase chain reaction detection method for genetically modified 55-1 papaya Akio Noguchi, Kosuke Nakamura, Kozue Sakata, Tomoko Kobayashi, Hiroshi Akiyama, Kazunari Kondo, Reiko Teshima, Kiyomi Ohmori, Masaki Kasahara, Rona Takabatake, Kazumi Kitta	124
Availability and utility of crop composition data Kazumi Kitta	124
Development and evaluation of a novel DNA extraction method suitable for processed foods Yasutaka Minegishi, Junichi Mano, Yasuo Kato, Kazumi Kitta, Hiroshi Akiyama, Reiko Teshima	125
Comparison of DNA extraction methods for sweet corn and processed sweet corns Reona Takabatake, Hiromichi Noritake, Akio Noguchi, Kosuke Nakamura, Kazunari Kondo, Hiroshi Akiyama, Reiko Teshima, Junichi Mano, Kazumi Kitta	125
Evaluation of real-time PCR detection methods for detecting rice products contaminated by rice genetically modified with a CpTI-KDEL-T-nos transgenic construct Kosuke Nakamura, Hiroshi Akiyama, Noriaki Kawano, Tomoko Kobayashi, Kayo Yoshimatsu, Junichi Mano, Kazumi Kitta, Kiyomi Ohmori, Akio Noguchi, Kazunari Kondo, Reiko Teshima	126
Interlaboratory study of qualitative PCR methods for genetically modified maize events MON810, Bt11, GA21, and CaMV P35S Reona Takabatake, Kaori Takashima, Takeyo Kurashima, Junichi Mano, Satoshi Furui, Kazumi Kitta, Tomohiro Koiwa, Hiroshi Akiyama, Reiko Teshima, Satoshi Futo, Yasutaka Minegishi	126
Simulation of collaborative studies for real-time PCR-based quantitation methods for genetically modified crops Satoshi Watanabe, Hiroshi Sawada, Shigehiro Naito, Hiroshi Akiyama, Reiko Teshima, Satoshi Furui, Kazumi Kitta, Akihiro Hino	127

## 《食品素材科学研究領域》

Application of Pressurized Fluid Extraction Method to Lipid Extraction for Determining trans-Fatty Acid Contents in Food Wakako Tsuzuki, Hideo Ohonishi and Ken Fujimoto .....	127
タンパク質含有率の低い硬質小麦品種におけるごはんパン適性について 細井 淳, 奥西 智哉 .....	128
市販米粉の製パン性について 奥座 宏一, 松木 順子 .....	128
Chitin-induced activation of immune signaling by the rice receptor CEBiP relies on a unique sandwich-type dimerization. Masahiro Hayafune, Rita Berisio, Roberta Marchetti, Alba Silipo, Miyu Kayama, Yoshitake Desaki, Sakiko Arima, Flavia Squeglia, Alessia Ruggiero, Ken Tokuyasu, Antonio Molinaro, Hanae Kaku, Naoto Shibuya .....	129
Sorghum as whole-crop feedstock for integrated production of fermentable sugars Long Wu, Mitsuru Gau, Tomoyuki Takai, Shigemitsu Kasuga, Mun-Soo Yun, Ken Tokuyasu .....	129
Enzymatic hydrolysis of wood with alkaline treatment Dai Oka, Kayoko Kobayashi, Noriyuki Isobe, Yu Ogawa, Tomoya Yokoyama, Satoshi Kimura, Ung-Jin Kim, Ken Tokuyasu, Masahisa Wada .....	130
Integration of a step for phenolic-acid recovery from rice straw with CaCCO process for efficient fermentable-sugar recovery Rui Zhao, Min-Soo Yun, Riki Shiroma, Masakazu Ike, Di Guan, Ken Tokuyasu .....	130
High-solid loading pretreatment/saccharification tests with CaCCO (Calcium Capturing by Carbonation) process for rice straw and domestic energy crop, Erianthus arudinaceus Masakazu Ike, Rui Zhao, Min-Soo Yun, Riki Shiroma, Seiko Ito, Ying Zhang, Ying Zhang, Mitsuhiro Arakane, Muhammad Imran Al-Haq, Junko Matsuki, Jeung-Yil Park, Mitsuru Gau, Kenichi Yakushido, Minoru Nagashima, Ken Tokuyasu .....	131
Further studies on the protein chemistry and property of glutathione-added rice bread : evidence of glutathionylation of batter protein as well as crumb structure/sensory evaluation Hiroyuki Yano, Naoto Kaji, Motoyuki Tokuriki .....	131
Effects of fats and oils on the bioaccessibility of carotenoids and vitamin E in vegetables Akihiko Nagao, Eiichi Kotake-Nara, Megumi Hase .....	132
《食品工学研究領域》	
Decolorization of Japanese soy sauce (shoyu) using adsorption Atsushi Miyagi, Hiroshi Nabetani, Mitsutoshi Nakajima .....	132
Color control of Japanese soy sauce (shoyu) using membrane technology Atsushi Miyagi, Takayuki Suzuki, Hiroshi Nabetani, Mitsutoshi Nakajima .....	133
貯穀害虫の画像による自動判別 曲山 幸生, 七里 与子, 宮ノ下明大, 今村 太郎, 古井 聡, 和田 有史, 増田 知尋, 石山 墨 .....	133
Direct Measurement of Helical Cell Motion of the Spirochete Leptospira Shuichi Nakamura, Alexander Leshansky, Yukio Magariyama, Keiichi Namba, Seishi Kudo .....	134

Distribution of Major Xanthones in the Pericarp, Aril, and Yellow Gum of Mangosteen ( <i>Garcinia Mangostana</i> Linn.) Fruit and Their Contribution to Antioxidative Activity Udomlak SUKATTA, Makiko TAKENAKA, Hiroshi ONO, Hiroshi OKADOME, Itaru SOTOME, Kazuko NANAYAMA, Warunee THANAPASE, Seiichiro ISOBE .....	134
Effective extraction of curcuminoids by grinding turmeric ( <i>Curcuma longa</i> ) with medium-chain triacylglycerols Makiko Takenaka, Takeshi Ohkubo, Hiroshi Okadome, Itaru Sotome, Toshihiro Itoh, Seiichiro Isobe .....	135
微細水滴含有過熱水蒸気による食品加熱システムの開発と農産加工への応用 五月女 格 .....	135
ORAC法による清酒製造工程の抗酸化性の変化 阿部 恭幸, 齋藤 高弘, 岡本 竹己, 佐々木隆浩, 星 佳宏, 杉江 正美, 萩原 昌司 .....	136
Fluorescence fingerprint imaging of gluten and starch in wheat flour dough with consideration of total constituent ratio Mito Kokawa, Junichi Sugiyama, Mizuki Tsuta, Masatoshi Yoshimura, Kaori Fujita, Mario Shibata, Tetsuya Araki, Hiroshi Nabetani .....	136
Prediction of aerobic plate count on beef surface using fluorescence fingerprint Masatoshi Yoshimura, Junichi Sugiyama, Mizuki Tsuta, Kaori Fujita, Mario Shibata, Mito Kokawa, Seiichi Ohshita, Naomi Ohto .....	137
Supercontinuum laser based optical characterization of Intralipid® phantoms in the 500-2250 nm range Ben Aernouts, Eduardo Zamora-Rojas, Robbe Van Beers, Rodrigo Watté, Ling Wang, Mizuki Tsuta, Jeroen Lammertyn, Wouter Saeys .....	137
Use of multivariate analysis for the improvement in prediction accuracy of bacterial aerobic plate count by flow cytometry Mizuki Tsuta, Yasuhiko Sasaki, Ikuo Takeuchi, Hideki Nakamoto, Jun Ishikawa, Susumu Kawasaki, Junichi Sugiyama, Kaori Fujita, Masatoshi Yoshimura, Mario Shibata, Mito Kokawa .....	138
Detection of aflatoxins B1, B2, G1 and G2 in nutmeg extract using fluorescence fingerprint Kaori Fujita, Junichi Sugiyama, Mizuki Tsuta, Mario Shibata, Mito Kokawa, Hiroyuki Onda, Takehito Sagawa .....	138
Image analysis of bread crumb structure in relation to mechanical properties Mario Shibata, Mizuki Tsuta, Junichi Sugiyama, Kaori Fujita, Mito Kokawa, Tetsuya Araki, Hiroshi Nabetani .....	139
Optimization of excitation–emission band-pass filter for visualization of viable bacteria distribution on the surface of pork meat Ken Nishino, Kazuaki Nakamura, Mizuki Tsuta, Masatoshi Yoshimura, Junichi Sugiyama, Shigeki Nakauchi, .....	139
蛍光指紋によるサトイモの産地判別法開発 中村結花子, 藤田かおり, 蔦 瑞樹, 杉山 純一, 粉川 美踏, 吉村 正俊, 柴田真理朗, 鍋谷 浩志, 荒木 徹也, 中村 哲 .....	140
Preparation of Phi29 DNA polymerase free of amplifiable DNA using ethidium monoazide, an ultraviolet-free light-emitting diode lamp and trehalose Hirokazu Takahashi, Hiroyuki Yamazaki, Satoshi Akanuma, Hiroko Kanahara, Toshiyuki Saito, Tomoyuki Chimuro, Takayoshi Kobayashi, Toshio Ohtani, Kimiko Yamamoto, Shigeru Sugiyama, Toshiro Kobori .....	140
The genome folding mechanism in yeast Kimura Hajime, Yasutoshi shimooka, Jun-ichi Nishikawa, Osamu Miura, Shigeru Sugiyama, Shuji Yamada, Takashi Oyama, .....	141

Regions of unusually high flexibility occur frequently in human genomic DNA Kimura Hajime, Dai Kageyama, Mika Furuya, Shigeru Sugiyama, Noboru Murata, Takashi Oyama .....	141
Nano-structure of heat-moisture treated waxy and normal starches Wittawat Jiranuntakula, Shigeru Sugiyama, Kazumi Tukamoto, Chureerat Puttanlek, Vilai Rungsardthongd, Santhanee Pancha- arnon, Dudsadee Uttapap .....	142
Impact of hot air and vacuum drying on the quality attributes of kiwifruit slices Takahiro Orikasa, Shoji Koide, Shintaro Okamoto, Teppei Imaizumi, Yoshiki Muramatsu, Jun-ichi Takeda, Takeo Shiina, Akio Tagawa .....	142
積算温度を指標としたコマツナの遠赤外線乾燥における品質変化の評価 岡本慎太郎, 折笠 貴寛, 畑中 咲子, 菰田 俊一, 齋藤順一郎, 富樫 千之, 松村 良樹, 小出 章二, 椎名 武夫, 田川 彰男 .....	143
Changes in gene expression of harvested cabbage in response to mechanical wound stress Manasikan Thammawong, Hiromi Umehara, Makoto Yoshida, Ayaka Soga, Tomoko Kaneta, Nobutaka Nakamura, Yasuhiro Ito, Kohei Nakano, Takeo Shiina .....	143
The response characteristics of Japanese radish (daikon) to mechanical wound stress Takeo Shiina, Hitomi Umehara, Tomoko Kaneta, Nobutaka Nakamura, Yasuhiro Ito, Manasikan Thammawong, Makoto Yoshida, Ayaka Soga, Kohei Nakano .....	144
加振周波数と包装資材が多段積載されたダイコンの加速度, 回転, 損傷特性に及ぼす影響 兼田 朋子, 中村 宣貴, タンマウオン マナスイカン, 北澤 裕明, 曾我 綾香, 吉田 誠, 福島 崇志, 中野 浩平, 椎名 武夫 .....	144
Expression of physical wound stress-responsive genes in Arabidopsis thaliana and cabbage (Brassica oleracea var. capitata L.) Manasikan Thammawong, Tomoko Kaneta, Hitomi Umehara, Nobutaka Nakamura, Yasuhiro Ito, Takeo Shiina .....	145
青果物のバルクコンテナ物流技術の開発 -コスト・環境負荷の低減を目指して- 椎名 武夫, 中村 宣貴, 兼田 朋子, Manasikan THAMMAWONG .....	145
新規バルクコンテナ輸送に伴うダイコンの加速度および接触部位応力が損傷特性に及ぼす影響の解明 兼田 朋子, 中村 宣貴, タンマウオン マナスイカン, 曾我 綾香, 吉田 誠, 新實 誉也, 横山 幸一, 椎名 武夫 .....	146
モモ果実の繰り返し衝撃に対する易損性の部位別評価 北澤 裕明, 清水 栄治, 長谷川奈緒子, 五十部誠一郎 .....	146
Effects of post-harvest cooling delay on weight loss, soluble solid and ascorbic acid contents of strawberry fruit Hiroaki Kitazawa, Tatsuo Sato, Nobutaka Nakamura, Satoru Motoki .....	147
Effect of Difference in Acceleration and Velocity Change on Product Damage Due to Repetitive Shock Hiroaki Kitazawa, Katsuhiko Saito, Yutaka Ishikawa .....	147
Super-fine rice-flour production by enzymatic treatment with high hydrostatic pressure processing Miyuki Kido, Kaneto Kobayashi, Shuji Chino, Toshikazu Nishiwaki, Noriyuki Homma, Mayumi Hayashi, Kazutaka Yamamoto, Toru Shigematsu .....	148



Membrane damage and viability loss of <i>E. coli</i> O157:H7 and <i>Salmonella</i> spp in apple juice treated with high hydrostatic pressure and thermal death time disks Dike O. Ukuku, Kazutaka Yamamoto, Md L. Bari, Sudarsan Mukhopadhaya, Vijay Juneja, Shinichi Kawamoto	148
短波帯加熱処理による包装済み味噌の酵素の失活 植村 邦彦, 高橋千栄子, 小林 功	149
Preparation, characterization, and in vitro gastrointestinal digestibility of oil-in-water emulsion-agar gels Zheng Wang, Marcos A. Neves, Isao Kobayashi, Kunihiko Uemura, Mitsutoshi Nakajima	149
Formulation and storage stability of baicalein-loaded oil-in-water emulsions Witcha Treeswan, Sosaku Ichikawa, Zheng Wang, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima, Isao Kobayashi	150
Preparation of monodisperse food-grade oleuropein-loaded W/O/W emulsions using microchannel emulsification and evaluation of their storage stability Safa Souilem, Isao Kobayashi, Marcos A. Neves, Sami Sayadi, Sosaku Ichikawa, Mitsutoshi Nakajima	150
Direct observation and characterization of the generation of organic solvent droplets with and without triglyceride oil by electrospraying Xian Zhang, Isao Kobayashi, Kunihiko Uemura, Mitsutoshi Nakajima	151
Long-term continuous production of soybean oil-in-water emulsions by microchannel emulsification Yanru Zhang, Isao Kobayashi, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima	151
Preparation and characterization of water-in-oil-in-water emulsions containing a high concentration of L-ascorbic acid Nauman Khalid, Isao Kobayashi, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima	152
Inulin fructotransferase (DFA I-producing) from <i>Arthrobacter</i> sp. H10-2 Kazutomo Haraguchi	152
Effect of Potato Ethanol Residue on Rat Plasma Cholesterol Levels Naoto Hashimoto, Noriyuki Shinomiya, Katsuichi Saito, Takahiro Noda, Kyu-Ho Han, Michihiro Fukushima	153
Comparison of long-term up-regulated genes during induction of freezing tolerance by cold and ABA in bromegrass cell cultures revealed by microarray analyses Toshihide Nakamura, Junshi Yazaki, Naoki Kishimoto, Shoshi Kikuchi, Albert J. Robertson, Lawrence V. Gusta, Masaya Ishikawa	153
Structural Elucidation of the Cyclization Mechanism of $\alpha$ -1, 6-Glucan by <i>Bacillus circulans</i> T-3040 Cycloisomaltooligosaccharide Glucanotransferase Nobuhiro Suzuki, Zui Fujimoto, Young-Min Kim, Mitsuru Momma, Naomi Kishine, Ryuichiro Suzuki, Shiho Suzuki, Shinichi Kitamura, Mikihiko Kobayashi, Atsuo Kimura, Kazumi Funane	154
Evidence for cycloisomaltooligosaccharide production from starch by <i>Bacillus circulans</i> T-3040 Kazumi Funane, Hitomi Ichinose, Motomi Araki, Ryuichiro Suzuki, Keitarou Kimura, Zui Fujimoto, Mikihiko Kobayashi, Atsuo Kimura	154
菌体外分解酵素が増強された納豆菌 rpoB 変異株による黒大豆納豆の製造 久保 雄司, 齋藤 勝一, ダニエル ホルヴェック, 舟根 和美, 中川 力夫, 木村啓太郎	155

Crystallization and preliminary X-ray crystallographic analysis of cycloisomaltooligosaccharide glucanotransferase from <i>Bacillus circulans</i> T-3040 Nobuhiro Suzuki, Young-Min Kim, Mitsuru Momma, Zui Fujimoto, Mikihiko Kobayashi, , Atsuo Kimura, Kazumi Funane .....	155
Conformation and physical properties of cycloisomaltooligosaccharides in aqueous solution Shiho Suzuki, Takashi Yukiya, Arata Ishikawa, Yoshiaki Yuguchi, Kazumi Funane, Shinichi Kitamura .....	156
Distribution of radioactive cesium ( <sup>134</sup> Cs plus <sup>137</sup> Cs) in a contaminated Japanese soybean cultivar during the preparation of tofu, natto, nimame (boiled soybean) Mayumi Hachinohe, Keitarou Kimura, Yuji Kubo, Katsuo Tanji, Shioka Hamamatsu, Shoji Hagiwara, Daisuke Nei, Hiromi Kameya, Rikio Nakagawa, Ushio Matsukura, Setsuko Todoriki, Shinichi Kawamoto .....	156
Reduction of the degradation activity of umami-enhancing purinic ribonucleotide supplement in miso by the targeted suppression of acid phosphatases in the <i>Aspergillus oryzae</i> starter culture Junichiro Marui, Sawaki Tada, Mari Fukuoka, Yutaka Wagu, Yohei Shiraiishi, Noriyuki Kitamoto, Tatsuya Sugimoto, Ryota Hattori, Satoshi Suzuki, Ken-Ichi Kusumoto .....	157
Characterization of a D-stereoselective aminopeptidase (DamA) exhibiting aminolytic activity and halophilicity from <i>Aspergillus oryzae</i> Mayumi Matsushita-Morita, Hiroyuki Nakagawa, Sawaki Tada, Junichiro Marui, Ryota Hattori, Satoshi Suzuki, Youhei Yamagata, Hitoshi Amano, Hiroki Ishida, Michio Takeuchi, Ken-Ichi Kusumoto.....	157
conF and conJ contribute to conidia germination and stress response in the filamentous fungus <i>Aspergillus nidulans</i> . Satoshi Suzuki, Özlem Sarikaya Bayram, Özgür Bayram, Gerhard H. Braus .....	158
Phytotoxicity Evaluation of Type B Trichothecenes Using a <i>Chlamydomonas reinhardtii</i> Model System Tadahiro Suzuki, Yumiko Iwahashi .....	158
《食品バイオテクノロジー研究領域》 2-O- $\alpha$ -D-Glucosylglycerol phosphorylase from <i>Bacillus selenitireducens</i> MLS10 possessing hydrolytic activity on $\beta$ -D-glucose 1-phosphate Takanori Nihira, Yuka Saito, Ken' ichi Ohtsubo, Hiroyuki Nakai, Motomitsu Kitaoka.....	159
Facile preparation of highly-crystalline lamella of (1 $\rightarrow$ 3)- $\beta$ -glucan by using extract of <i>Euglena gracilis</i> Yu Ogawa, Kazuhiro Noda, Satoshi Kimura, Motomitsu Kitaoka, Masahisa Wada .....	159
Distinct substrate specificities of three glycoside hydrolase family 42 $\beta$ -galactosidases from <i>Bifidobacterium longum</i> subsp. <i>infantis</i> ATCC 15697 Alexander H. Viborg, Takane Katayama, Maher Abou Hachem, Mathias C. F. Andersen, Mamoru Nishimoto, Mads H. Clausen, Tadasu Urashima, Birte Svensson, Motomitsu Kitaoka .....	160
Directed evolution to enhance thermostability of galacto-N-biose/lacto-N-biose I phosphorylase Yoshiyuki Koyama, Masafumi Hidaka, Mamoru Nishimoto, Motomitsu Kitaoka.....	160
Discovery of cellobionic acid phosphorylase in cellulolytic bacteria and fungi Takanori Nihira, Yuka Saito, Mamoru Nishimoto, Motomitsu Kitaoka, Kiyohiko Igarashi, Ken' ichi Ohtsubo, Hiroyuki Nakai .....	161
Potassium ion-dependent trehalose phosphorylase from halophilic <i>Bacillus selenitireducens</i> MLS10 Takanori Nihira, Yuka Saito, Kazuhiro Chiku, Motomitsu Kitaoka, Ken-ichi Ohtsubo, Hiroyuki Nakai .....	161

Discovery of $\beta$ -1, 4-D-mannosyl-N-acetyl-D-glucosamine phosphorylase involving in metabolism of N-glycans Takanori Nihira, Erika Suzuki, Motomitsu Kitaoka, Mamoru Nishimoto, Ken'ichi Ohtsubo, Hiroyuki Nakai	162
Lacto-N-biosidase encoded by a novel gene of <i>Bifidobacterium longum</i> subsp. <i>longum</i> shows a unique substrate specificity and requires a cognate chaperon for its active expression Haruko Sakurama, Masashi Kiyohara, Jun Wada, Yuji Honda, Masanori Yamaguchi, Satoru Fukiya, Atsushi Yokota, Hisashi Ashida, Hidehiko Kumagai, Motomitsu Kitaoka, Kenji Yamamoto, Takane Katayama	162
Structure of an uncharacterized glycoside hydrolase family 63 enzyme in complex with a glycosynthase product Takatsugu Miyazaki, Megumi Ichikawa, Gaku Yokoi, Motomitsu Kitaoka, Haruhide Mori, Yoshikazu Kitano, Atsushi Nishikawa, Takashi Tonozuka	163
Characterization of the cytosolic $\beta$ -N-acetylglucosaminidase from <i>Bifidobacterium longum</i> subsp. <i>longum</i> Yuji Honda, Mamoru Nishimoto, Takane Katayama, and Motomitsu Kitaoka	163
Colorimetric quantification of $\alpha$ -D-mannose 1-phosphate Takanori Nihira, Erika Suzuki, Motomitsu Kitaoka, Mamoru Nishimoto, Ken'ichi Ohtsubo, and Hiroyuki Nakai	164
Lectin-like oxidized LDL receptor-1 is palmitoylated and internalizes ligands via caveolae/raft-dependent endocytosis M.K.Kuramochi, Q.Xie, S. Kajiwara, S. Komba, T.Minowa, S.Machida	164
Expression of neutral $\beta$ -glucosidase from <i>Scytalidium thermophilum</i> in <i>Candida glabrata</i> for ethanol production from alkaline-pretreated rice straw Xiaohui Wang, Masakazu Ike, Riki Shiroma, Ken Tokuyasu, Yoshikiyo Sakakibara	165
クロラムフェニコール耐性遺伝子によるゲノム重複を活用した枯草菌育種法 稲岡 隆史, 草房 克江, 本山 志織	165
Biosynthetic conclusions from the functional dissection of oxygenases for biosynthesis of actinorhodin and related <i>Streptomyces</i> antibiotics Takaaki Taguchi, Masaki Yabe, Hitomi Odaki, Miki Shinozaki, Mikko Metsä-Ketelä, Takao Arai, Susumu Okamoto, Koji Ichinose	166
Transcriptional Regulation of Fruit Ripening by Tomato FRUITFULL Homologs and Associated MADS Box Proteins Masaki Fujisawa, Yoko Shima, Hiroyuki Nakagawa, Mamiko Kitagawa, Junji Kimbara, Toshitsugu Nakano, Takafumi Kasumi, Yasuhiro Ito	166
Characterization of a large glycoprotein proteoglycan by size-exclusion chromatography combined with light and X-ray scattering methods Yasushi Watanabe, Yoji Inoko	167
The regulatory mechanism of fruit ripening revealed by analyses of direct targets of the tomato MADS-box transcription factor RIPENING INHIBITOR Masaki Fujisawa, Yasuhiro Ito	167
Expression profiling of tomato pre-abscission pedicels provides insights into abscission zone properties including competence to respond to abscission signals Toshitsugu Nakano, Masaki Fujisawa, Yoko Shima, Yasuhiro Ito	168
Tomato FRUITFULL homologues act in fruit ripening via forming MADS-box transcription factor complexes with RIN Yoko Shima, Mamiko Kitagawa, Masaki Fujisawa, Toshitsugu Nakano, Hiroki Kato, Junji Kimbara, Takafumi Kasumi, Yasuhiro Ito	168

Crystal structure and characterization of the glycoside hydrolase family 62 $\alpha$ -L-arabinofuranosidase from <i>Streptomyces coelicolor</i> Tomoko Maehara, Zui Fujimoto, Hitomi Ichinose, Mari Michikawa, Koichi Harazono, Satoshi Kaneko	169
Characterization of mannose isomerase from a cellulolytic actinobacteria <i>Thermobifida fusca</i> MBL10003 Takafumi Kasumi, Sumiko Mori, Satoshi Kaneko, Hitoshi Matsumoto, Yousuke Kobayashi, Yoshiyuki Koyama	169
Expression of <i>Arabidopsis thaliana</i> xylose isomerase gene and the effect on ethanol production in <i>Flammulina velutipes</i> Tomoko Maehara, Koji Takabatake, Satoshi Kaneko	170
Phase diagram-guided method for growth of a large crystal of glycoside hydrolase family 45 inverting cellulase suitable for neutron structural analysis Akihiko Nakamura, Takuya Ishida, Shinya Fushinobu, Katsuhiko Kusaka, Ichiro Tanaka, Koji Inaka, Yoshiki Higuchi, Mika Masaki, Kazunori Ohta, Satoshi Kaneko, Nobuo Niimura, Kiyohiko Igarashi, Masahiro Samajima	170
A galactosyltransferase acting on arabinogalactan protein glycans is essential for embryo development in <i>Arabidopsis</i> Naomi Geshi, Jorunn N. Johansen, Adiphil Dilokpimol, Aurélie Rolland, Katia Belcram, Stéphane Verger, Toshihisa Kotake, Yoichi Tsumuraya, Satoshi Kaneko, Theodora Tryfona, Paul Dupree, Henrik V. Scheller, Herman Höfte, Gregory Mouille	171
The structure of a <i>Streptomyces avermitilis</i> $\alpha$ -L-rhamnosidase reveals a novel carbohydrate-binding module CBM67 within the six-domain arrangement Zui Fujimoto, Adam Jackson, Mari Michikawa, Tomoko Maehara, Mitsuru Momma, Bernard Henrissat, Harry J. Gilbert, Satoshi Kaneko	171
$\beta$ -Galactosyl Yariv reagent binds to the $\beta$ -1, 3-galactan of arabinogalactan proteins Kiminari Kitazawa, Theodora Tryfona, Yoshihisa Yoshimi, Yoshihiro Hayashi, Susumu Kawauchi, Liudmil Antonov, Hiroshi Tanaka, Takashi Takahashi, Satoshi Kaneko, Paul Dupree, Yoichi Tsumuraya, Toshihisa Kotake	172
<b>付 録</b>	
食品総合研究所研究報告投稿要領	173
「日本食品科学工学会誌」投稿論文記載要項	175

食品総合研究所研究報告

第79号

平成27年3月 印刷 平成27年3月 発行  
(非売品)

編集者 独立行政法人 農業・食品産業技術総合研究機構

発行者 食品総合研究所

所長 大谷敏郎

(〒305-8642 茨城県つくば市観音台2-1-12)

印刷所 茨城県筑西市中館185-6

朝日印刷株式会社

本誌より転載・複製をする場合は食品総合研究所の許可を得て下さい。

