

# 農研機構研究報告 食品研究部門

第1号

平成29年3月

国立研究開発法人 農業・食品産業技術総合研究機構

食品研究部門

# 農研機構研究報告 食品研究部門

第 1 号

研究部門長	鍋	谷	浩	志				
編集委員会								
委員長	長	嶋		等				
委員	八	卷	幸	二	矢	野	裕	之
	北	澤	裕	明	曲	山	幸	生
	都	築	和	香子	伊	藤	康	博
事務局	濱	野	保	文				

## Bulletin of the NARO, Food Research

No. 1

Director-General

NABETANI Hiroshi

Editorial Board

Chairman NAGASHIMA Hitoshi

Members YAMAKI Kohji

YANO Hiroyuki

KITAZAWA Hiroaki

MAGARIYAMA Yukio

TSUZUKI Wakako

ITO Yasuhiro

Secretary HAMANO Yasufumi

Food Research Institute, NARO

National Agriculture and Food Research Organization (NARO)

Tsukuba, Ibaraki 305-8642, Japan

## 農研機構研究報告 食品研究部門（第1号）目次

### 報 文

大豆粉生地物性に対するグルタチオンの効果 早川 文代, 福井 明子, 松木 順子, 矢野 裕之	1
フェロモントラップに捕獲されたコクゾウムシのImageJを用いた半自動計数法の開発 曲山 幸生, 今村 太郎, 古井 聡, 宮ノ下 明大	9
Preparation of crystal flakes of p-coumaric and ferulic acids from <i>Erianthus arundinaceus</i> culms and leaves as a side process of cellulosic-ethanol production Rui Zhao, Riki Shiroma, Min-Soo Yun, Masakazu Ike, Di Guan, Yoshiyuki Koyama, Mitsuru Gau and Ken Tokuyasu	19

### 研究ノート

品種および収穫時期の違いがパプリカの抗酸化能に及ぼす影響 若木 学, 石川 (高野) 祐子	29
食品関連タンパク質の熱処理可溶性分子の溶液X線散乱測定による特性解析 渡邊 康	35
リンゴプロシアニジン5量体がヘルパー T細胞の分化に及ぼす影響の解析 後藤 真生, 若木 学, 石川 (高野) 祐子	41
3M™病原菌自動検出システム 改良サルモネラ検出キット MDA2 SALの評価 川崎 晋, 齋藤 美枝, Fia Noviyanti, 原田 武尚, 齊藤 匠子, 守山 隆敏	47
大学生を対象とした食の安全セミナープログラムの開発 細谷 幸恵, 野澤 博美, 川崎 晋, 稲津 康弘	53
Preparation of an in-house reference material of Thai rice containing citrinin Hidemi Hatabayashi, Yuki Sago, Hiroyuki Nakagawa, Masayo Kushiro	59
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 (2015年11月~2016年10月) 古井 聡, 宮ノ下 明大, 今村 太郎, 曲山 幸生	65
小染色体を保有する <i>Aspergillus oryzae</i> 株について 楠本 憲一, 服部 領太, 鈴木 聡	73
CaCCO プロセス由来糖化後残渣からのアルカリ可溶性リグニン抽出条件最適化 山岸 賢治, 趙 鋭, 池 正和, 関 笛, 我有 満, 徳安 健	79

### 技術報告

ナス科野菜の酸素ラジカル吸収能 (Oxygen radical absorbance capacity) の評価 石川 (高野) 祐子, 若木 学, 斎藤 新, 河崎 靖, 山本 (前田) 万里	87
うどん・そうめん類と中華めん類のゆで調理における安定ストロンチウムおよび主要無機元素の挙動 進藤 久美子, 八戸 真弓, 濱松 潮香	95

### 国連大学生研究成果

Isolation, Characterization and Bio-control Activities of <i>Bacillus subtilis</i> from in Fermented Soybean in Cambodia Ek Sopheap	105
--	-----

Identification of immuno-modulatory compounds from several type of rice brans and vegetables by metabolomics approach Dr. Nancy Dewi Yuliana .....	106
Lipid-lowering ability of <i>Lactobacillus plantarum</i> IBT16 isolated from Vietnamese fermented shrimp in diet-induced obese mice Dr. Nguyen Thi Tuyet Nhung .....	107
Development of Taxon-Specific Sequence(s) of Eggplant(s) for LAMP Detection Method SABINA YEASMIN, Ph.D. ....	108
Preparation and characterization of esterified xylo-oligosaccharides- stabilized oil-in-water emulsions using microchannel emulsification Sunsanee Udomrati .....	109
<b>原著論文</b>	
《放射性物質影響研究コーディネーター》 炊飯調理における放射性セシウムの動態解析 八戸 真弓, 奥西 智哉, 萩原 昌司, 等々力 節子, 川本 伸一, 濱松 潮香.....	110
放射能の不均一分布がゲルマニウム半導体検出器を用いた食品の放射能測定値に及ぼす影響 吉田 充, 西塚 菜穂子, 村上 恵理, 八戸 真弓, 濱松 潮香.....	110
カキ果実におけるへたを経由した放射性セシウム-137の移行 関澤 春仁, 佐藤 真理, 相原 隆志, 村上 敏文, 八戸 真弓, 濱松 潮香.....	110
《食品機能研究領域》 Inhibition of MMP-2-Mediated mast cell invasion by NF-kB inhibitor DHMEQ in mast cells Naruto Noma, Masataka Asagiri, Masatoshi Takeiri, Saori Ohmae, Kenji Takemoto, Keiko Iwaisako, Nagahiro Minato, Mari Maeda-Yamamoto, Siro Simizu, Kazuo Umezawa .....	110
Metabolic profiling-based data-mining for an effective chemical combination to induce apoptosis of cancer cells Motofumi Kumazoe, Yoshinori Fujimura, Shiori Hidaka, Yoonhee Kim, Kanako Murayama, Mika Takai, Yuhui Huang, Shuya Yamashita, Motoki Murata, Daisuke Miura, Hiroyuki Wariishi, Mari Maeda-Yamamoto, Hirofumi Tachibana .....	111
Quercetin glycosides-rich tea cultivars ( <i>Camellia sinensis</i> L.) in Japan Manami Monobe, Sachiko Nomura, Kaori Ema, Akiko Matsunaga, Atsushi Nesumi, Katuyuki Yoshida, Mari Maeda-Yamamoto, Hideki Horie .....	111
エピガロカテキンを主要カテキンとする水出し緑茶飲用によるインフルエンザワクチン接種後の抗体価上昇効果の検討 宗宮 浩一, 竹中 洋, 根岸 宏邦, 物部 真奈美, 山本 (前田) 万里, 玉置 淳子, 石坂 信和.....	111
Phylogenetic analysis and taste cell expression of calpain 9 in catfish ( <i>Ictalurus punctatus</i> ) Tetsuya Ookura, Eiki Koyama, Anne Hansen, John H. Teeter, Yukio Kawamura, Joseph G. Brand.....	111
Mode of pancreatic lipase inhibition activity in vitro by some flavonoids and non-flavonoid polyphenols Abu Torab M.A. Rahim, Yoko Takahashi, Kohji Yamaki .....	112
Assessment and separation of angiotensin I-converting enzyme inhibitory peptides in chinese soypaste Fengjuan Li, Kohji Yamaki, Yongqiang Cheng, Yuanyuan Fang .....	112
ラットによる食品含有フラボノイドの肝臓、血清コレステロール、血清8-イソプロスタニンに及ぼす影響の検討 八巻 幸二, 高橋 陽子.....	112
Black tea polyphenols promotes GLUT4 translocation through both PI3K-and AMPK-dependent pathways in skeletal muscle cells	

Tomoya Nagano, Kaori Hayashibara, Manabu Ueda-Wakagi, Yoko Yamashita, Hitoshi Ashida .....	112
3-O-Acyl-epicatechins increase glucose uptake activity and GLUT4 translocation through activation of PI3K signaling in skeletal muscle cells Manabu Ueda-Wakagi, Rie Mukai, Naoya Fuse, Y. Mizushima, Hitoshi Ashida .....	112
$\beta$ -Conglycinin peptides improve glucose uptake through the AMPK signaling pathway in L6 myotubes Yoko Yamashita, Manabu Ueda-Wakagi, Mai Sakamoto, N. Tachibana, S. Wanezaki, M. Kohno, Hitoshi Ashida .....	113
Modulatory activity of <i>Lactobacillus rhamnosus</i> OLL2838 in a mouse model of intestinal immunopathology Tasuku Ogita, Paolo Bergamo, Francesco Maurano, Rossana D'Arienzo, Giuseppe Mazzeo, Giuseppina Bozzella, Diomira Luongo, Toshihiro Sashihara, Takuya Suzuki, Soichi Tanabe, Mauro Rossi .....	113
Evaluation of a Method to Quantify Isoflavones in Soybean by Single and Multi-laboratory Validation Studies Tasuku Ogita, Jun Watanabe, Manabu Wakagi, Kouji Nakamichi, Seiichi Komiyama, Jun Takebayashi, Junichi Mano, Kazumi Kitta, Shigekazu Koyano, Yuko Takano-Ishikawa .....	113
In vivo dose response and in vitro mechanistic analysis of enhanced immunoglobulin A production by <i>Lactobacillus plantarum</i> AYA Yosuke Kikuchi, Hikaru Yoshida, Tasuku Ogita, Kimiko Okita, Shin-ichi Fukudome, Takuya Suzuki, Soichi Tanabe .....	113
Oligomeric procyanidins interfere with glycolysis of activated T cells. A novel mechanism for inhibition of T cell function Masao Goto, Manabu Wakagi, Toshihiko Shoji, Yuko Takano-Ishikawa .....	113
アントシアニン高含有アロニアおよびハスカップ果実抽出物は臭素酸カリウム誘導腎酸化障害を低減する 高橋 あずさ, 渡辺 純, 坂口 博英, 岡崎 由佳子, 鈴木 卓, 知地 英征 .....	114
Identification and distribution of cellobiose 2-epimerase genes by a PCR-based metagenomic approach Jun Wasaki, Hidenori Taguchi, Takeshi Senoura, Hiroshi Akasaka, Jun Watanabe, Kazuki Kawaguchi, Yosuke Komata, Kiyotoshi Hanashiro, Susumu Ito .....	114
Determination of the antioxidative activities of herbs harvested in Japan by oxygen radical absorbance capacity methods Manabu Wakagi, Yuuki Taguchi, Jun Watanabe, Tasuku Ogita, Masao Goto, Ryo Arai, Katsuhito Ujihara, Yuko Takano-Ishikawa .....	114
Improvement and interlaboratory validation of the lipophilic oxygen radical absorbance capacity: Determination of antioxidant capacities of lipophilic antioxidant solutions and food extracts Jun Watanabe, Tomoyuki Oki, Jun Takebayashi, Hiroshi Yada, Manabu Wakagi, Yuko Takano-Ishikawa, Akemi Yasui .....	114
Chronic high intake of quercetin reduces oxidative stress and induces expression of the antioxidant enzymes in the liver and visceral adipose tissues in mice Masuko Kobori, Yumiko Takahashi, Yukari Akimoto, Mutsumi Sakurai, Izumi Matsunaga, Haruno Nishimuro, Katsunari Ippoushi, Hideaki Oike, Mayumi Ohnishi-Kameyama .....	114
Estimated daily intake and seasonal food sources of quercetin in Japan Haruno Nishimuro, Hirofumi Ohnishi, Midori Sato, Mayumi Ohnishi- Kameyama, Izumi Matsunaga, Shigehiro Naito, Katsunari Ippoushi, Hideaki Oike, Tadahiro Nagata, Hiroshi Akasaka, Shigeyuki Saitoh, Kazuaki Shimamoto, Masuko Kobori .....	115
Quercetin reduces eIF2 $\alpha$ phosphorylation by GADD34 induction Miki Hayakawa, Masanori Itoh, Kazunori Ohta, Shimo Li, Masashi Ueda, Miao-xing Wang, Emika Nishida, Saiful Islam, Chihiro Suzuki, Kaori Ohzawa, Masuko Kobori, Takashi Inuzuka, Toshiyuki Nakagawa .....	115
Time-fixed feeding prevents obesity induced by chronic advances of light/dark cycles in mouse models of jet-lag/shift work Oike H, Sakurai M, Ippoushi K, Kobori M .....	115

Quercetin suppresses immune cell accumulation and improves mitochondrial gene expression in adipose tissue of diet-induced obese mice Masuko Kobori, Yumiko Takahashi, Mutsumi Sakurai, Yukari Akimoto, Hideaki Oike, Katsunari Ippoushi	115
Prevention and reversal of lipotoxicity-Induced hepatic insulin resistance and steatohepatitis in mice by an antioxidant carotenoid, $\beta$ -cryptoxanthin Yinhua Ni, Mayumi Nagashimada, Lili Zhan, Naoto Nagata, Masuko Kobori, Minoru Sugiura, Kazunori Ogawa, Shuichi Kaneko, Tsuguhito Ota	115
Easy method for the approximate quantitation of 4-methylthio-3-butenyl isothiocyanate of daikon(Raphanus Sativus L.) Katsunari Ippoushi, Nobuyuki Fukuoka, Masahiko Ishida, Atsuko Takeuchi, Keiko Azuma	116
Effects of an equol-producing bacterium isolated from human faeces on isoflavone and lignan metabolism in mice. Motoi Tamura, Sachiko Hori, Hiroyuki Nakagawa, Satoshi Yamauchi, Takuya Sugahara	116
Relationships among fecal daidzein metabolites, dietary habit and BMI in healthy volunteers: a preliminary study. Motoi Tamura, Sachiko Hori, Hiroyuki Nakagawa, Kazuhiro Katada, Kazuhiro Kamada, Kazuhiko Uchiyama, Osamu Handa, Tomohisa Takagi, Yuji Naito, Toshikazu Yoshikawa	116
Effect of visual aids and individual differences of cognitive traits in judgments on food safety Hidehito Honda, Midori Ogawa, Tomohiro Masuda, Ken Utsumi, Sora Park, Atsushi Kimura, Daisuke Nei, Yuji Wada	116
Variation in risk judgment on radiation contamination of food: Thinking trait and profession Hidehito Honda, Midori Ogawa, Takuma Murakoshi, Tomohiro Masuda, Ken Utsumi, Daisuke Nei, Yuji Wada	116
Eleven-month-old infants infer differences in the hardness of object surfaces from observation of penetration events Tomoko Imura, Tomohiro Masuda, Nobu Shirai, Yuji Wada	117
高齢者の認知傾向とインターネットでの購買行動の関係 松原 和也, 杉山 洋, 村越 琢磨, 増田 知尋, 本田 秀仁	117
甘味・塩味における呈味増強香気の学習効果の検証 河合 崇行, 日下部 裕子	117
Natural eating behavior of two types of hydrocolloid gels as measured by electromyography: Quantitative analysis of mouthful size effects Kaoru Kohyama, Fumiyo Hayakawa, Zhihong Gao, Sayaka Ishihara, Takahiro Funami, and Katsuyoshi Nishinari	117
The influence of inhibit avoid water defect responses by heat pretreatment on hot air drying rate of spinach Takashi Watanabe, Takahiro Orikasa, Hiroshi Shono, Shoji Koide, Yasumasa Ando, Takeo Shiina, Akio Tagawa	117
コンジョイント分析を用いた乾燥パプリカの最適ブランチング処理条件の検討 渡邊 高志, 折笠 貴寛, 小出 章二, 佐藤 和憲, 中村 宣貴, 椎名 武夫, 田川 彰男	118
A pilot study on ultrasound elastography for evaluation of mechanical characteristics and oral strategy of gels Zhihong Gao, Satomi Nakao, Sayaka Ishihara, Takahiro Funami, and Kaoru Kohyama	118
官能評価による加熱植物油の簡便な風味のプロファイリング 早川 文代, 風見 由香利, 神保 聡子, 浦田 貴之	118
Texture evaluation of cooked rice prepared from Japanese cultivars using two-bite instrumental test and electromyography Kaoru Kohyama, Navdeep Singh Sodhi, Keitaro Suzuki, and Tomoko Sasaki	118

## 《食品安全研究領域》

- Modifications of azoxymethane-induced carcinogenesis and 90-day oral toxicities of 2-tetradecylcyclobutanone as a radiolytic product of stearic acid in F344 rat  
Makoto Sato, Setsuko Todoriki, Tetsuyuki Takahashi, Ezar Hafez, Chie Takasu, Hisanori Uehara, Kohji Yamakage, Takashi Kondo, Kozo Matsumoto, Masakazu Furuta, Keisuke Izumi ..... 119
- Effect of sperm ejection by females on male fertilization success in the swallowtail butterfly, *Papilio xuthus* L. (Lepidoptera: Papilionidae)  
Nayuta Sasaki, Setsuko Todoriki, Mamoru Watanabe ..... 119
- 長期貯蔵した照射香辛料のESR, PSL, TL法による検知  
亀谷 宏美, 等々力 節子, 萩原 昌司, 齊藤 希巳江..... 119
- 複数ピークからなるESRスペクトルのピーク分離解析  
亀谷 宏美, 菊地 正博, 小林 泰彦, 永田 夏樹, 鶴飼 光子, 菰田 聖一..... 119
- 照射香辛料検知のためのESR測定条件の検討  
亀谷 宏美..... 120
- Historical review of researches on yellow rice and mycotoxigenic fungi adherent to rice in Japan  
Masayo Kushiro ..... 120
- Mycotoxin contamination of Vietnamese coffee beans caused by *Aspergillus* sections *Nigri* and *Circumdati*  
Ruiko Hashimoto, Hiroyuki Nakagawa, Yoshiki Onji, Katsuyoshi Asano, Koji Yokoyama, Haruo Takahashi ..... 120
- Detection of N-(1-deoxy-d-fructos-1-yl) fumonisins B2 and B3 in corn by high-resolution LC-Orbitrap MS  
Yousuke Matsuo, Kentaro Takahara, Yuki Sago, Masayo Kushiro, Hitoshi Nagashima, Hiroyuki Nakagawa ..... 120
- Limited surveillance of mycoflora and mycotoxins in Thai rice retailed in Japan  
Masayo Kushiro, Yazhi Zheng, Hiroko Noriduki, Yoshiko Sugita-Konishi ..... 120
- Research on mycotoxin glucosides (masked mycotoxins)  
Hiroyuki Nakagawa ..... 121
- Separation of aflatoxin M1 and aflatoxin G1 on reverse-phase HPLC  
Yazhi Zheng, Yosuke Matsuo, Hiroyuki Nakagawa, Masayo Kushiro ..... 121
- Survival of Inoculated *Escherichia coli* O157:H7 in Japanese Sweet Dumplings during Storage  
Yasuhiro Inatsu, Yukiko Ohata, Nobutaka Nakamura, Chiraporn Ananchaipattana, Latiful Bari, Susumu Kawasaki ..... 121
- 3M™ Molecular Detection System を用いた *Listeria monocytogenes* の簡易迅速遺伝子検査法の評価  
川崎 晋, 持田 麻里, 齋藤 美枝, 守山 隆敏..... 121
- Two models of a farming environment: the fate of *Escherichia coli* contaminating either soil or water with soil  
Yukie Hosotani, Susumu Kawasaki, Thongsavath Chanthasombath, Borarin Buntong, Md Latiful Bari, and Yasuhiro Inatsu ..... 121
- 10, 11月に屋外のフェロモントラップに捕獲されたノシメマダラメイガおよびタバコシバンムシの個体数－関東地方8カ所における2014年の調査－  
宮ノ下 明大, 佐野 俊夫..... 122
- 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（2014年11月～2015年10月）（2016）  
古井 聡, 今村 太郎, 宮ノ下 明大..... 122
- 《食品分析研究領域》
- Isolation and structure determination of new siderophore albachelin from *Amycolatopsis alba*  
Shinya Kodani, Hisayuki Komaki, Masahiro Suzuki, Hikaru Hemmi, Mayumi Ohnishi-Kameyama ..... 122

NMR detection and characterization of I-quartets in parallel DNA quadruplexes Masashi Kinoshita, Shunsuke Takaya, Tomokazu Shibata, Hikaru Hemmi, Yasuhiko Yamamoto	122
Structure determination of a siderophore peucechelin from <i>Streptomyces peucetius</i> Shinya Kodani, Hisayuki Komaki, Masahiro Suzuki, Fumiya Kobayakawa, Hikaru Hemmi	122
わかめの加工による微量元素組成変動と産地判別の可能性 絵面 智宏, 國分 敦子, 阿部 洋俊, 濱田 真子, 加藤 栄一, 鈴木 彌生子	123
炭素・窒素安定同位体比分析による原木栽培及び菌床栽培乾シイタケの産地間比較 鈴木 彌生子, 中下 留美子, Noemia Kazue Ishikawa, 田淵 諒子, 作野 えみ, 時本 景亮	123
多元素同時分析によるアカシアはちみつの原料原産地判別 一色 摩耶, 中村 哲, 鈴木 彌生子	123
長野県塩尻市における過去10年間のツキノワグマ捕獲状況と捕獲個体の人里依存度 中下 留美子, 岸元 良輔, 瀧井 睦子, 橋本 操, 鈴木 彌生子, 林 秀剛, 泉山 茂之	123
Novel C-Xylosylflavones from the Leaves and Flowers of <i>Iris gracilipes</i> Takayuki Mizuno, Tsunashi Kamo, Nobuhiro Sasaki, Hiroshi Yada, Yoshinori Murai and Tsukasa Iwashina	124
Highly-selective recognition of tryptophan in water by a poorly water-soluble scandium compound Nobuyuki Hayashi, Shigeki Jin, Tomomi Ujihara	124
Optimization of an Indirect Enzymatic Method for the Simultaneous Analysis of 3-MCPD, 2-MCPD, and Glycidyl Esters in Edible Oils Kazuo Koyama, Kinuko Miyazaki, Kousuke Abe, Keiich Ikuta, Yoshitsugu Egawa, Tadashi Kitta, Hirotsugu Kido, Takashi Sano, Yukinari Takahashi, Toru Nezu, Hidenori Nohara, Takashi Miyashita, Hiroshi Yada, Kumiko Yamazaki and Yomi Watanabe	124
Association of catechin molecules in water: quantitative binding study and complex structure analysis Tomomi Ujihara, Nobuyuki Hayashi	124
味噌汁の作り方の違いがフラン量低減に及ぼす影響 箭田 浩士	125
2-Cyanoethyl-isoxazolin-5-one is a major low molecular weight nitrogenous compound in sweet pea ( <i>Lathyrus odoratus</i> L.) Kazuo Ichimura, Hiroshi Ono, Ayaka Soga, Hiroko Shimizu-Yumoto, Katsunori Kohata and Masayoshi Nakayama	125
Characteristic Conformation of Mosher's Amide Elucidated Using the Cambridge Structural Database Akio Ichikawa, Hiroshi Ono, Yuji Mikata	125
Development of the dichlorvos-ammonia (DV-AM) method for the revised detection of aflatoxigenic fungi Kimiko Yabe, Hidemi Hatabayashi, Akifumi Ikehata, Yazhi Zheng, Masayo Kushiro	125
Surface Effect of Alumina on the First Electronic Transition of Liquid Water Studied by Far-Ultraviolet Spectroscopy Takeyoshi Goto, Akifumi Ikehata, Yusuke Morisawa, Yukihiko Ozaki	125
Logistic regression analysis for identifying the factors affecting development of non-invasive blood glucose calibration model by near-infrared spectroscopy Yasuhiro Uwadaira, Ayaka Shimotori, Akifumi Ikehata, Keiko Fujie, Yoshio Nakata, Hiroaki Suzuki, Hitoshi Shimano, Koichi Hashimoto	126
遠紫外分光法による水溶液の電子遷移の解析と反応解析への展開 後藤 剛喜, 池羽田 晶文, 森澤 勇介, 東 昇, 尾崎 幸洋	126



Assessment of technical problems in the analysis of inorganic elements in squid through proficiency testing Tomohiro Narukawa, Kazumi Inagaki, Shigehiro Naito, Yanbei Zhu, Shin-ichi Miyashita, Takayoshi Kuroiwa, Akiharu Hioki, Toshiyuki Fujimoto, Koichi Chiba .....	126
2009年度及び2010年度精米粉末中無機元素, 並びに2009年度ひじき粉末中無機元素の技能試験結果 内藤 成弘.....	126
Improvement of the group testing method to evaluate GM maize content Junichi Mano, Kaori Takashima, Satoshi Futo, Yasutaka Minegishi, Kenji Ninomiya, Akio Noguchi, Kazunari Kondo, Reiko Teshima, Reona Takabatake, Kazumi Kitta .....	127
Selection of suitable DNA extraction methods for genetically modified maize 3272, and development and evaluation of an event-specific quantitative PCR method for 3272 Reona Takabatake, Tomoko Masubuchi, Satoshi Futo, Yasutaka Minegishi, Akio Noguchi, Kazunari Kondo, Reiko Teshima, Takeyo Kurashima, Junichi Mano, Kazumi Kitta .....	127
《食品素材科学研究領域》 Development of a simple method for evaluation of water absorption rate and capacity of rice flour samples Junko Matsuki, Tomoya Okunishi, Hiroshi Okadome, Keitaro Suzuki, Koichi Yoza, Ken Tokuyasu .....	127
Development of a rapid and highly sensitive determination of triacylglycerol in lipids fraction of foodstuffs Wakako Tsuzuki .....	127
Molecular breeding of lignin degrading brown rot fungus <i>Gloeophyllum trabeum</i> by homologous expression of laccase gene Misa Arimoto, Kenji Yamagishi, Jianqiao Wang, Kanade Tanaka, Takanori Miyoshi, Ichiro Kamei, Ryuichiro Kondo, Toshio Mori, H. Kawagishi, Hirofumi Hirai .....	128
稲わら、エリアンサス茎葉のCaCCO法前処理・酵素糖化プロセスから発生するカルシウム含有残渣の灰化物によ る畜産排水水質の改善 田中 康男, 趙 銳, 池 正和, 榊原 祥清, 進藤 久美子, 我有 満, 徳安 健.....	128
Glutathione changes physical properties of rice batter without increasing its allergenicity Hiroyuki Yano, Akiko Fukui .....	128
Glyceroglycolipids Affect Uptake of Carotenoids Solubilized in Mixed Micelles by Human Intestinal Caco-2 Cells Eiichi Kotake-Nara, Lina Yonekura, Akihiko Nagao .....	128
Lysoglyceroglycolipids Improve the Intestinal Absorption of Micellar Fucoxanthin by Caco-2 Cells Eiichi Kotake-Nara, Lina Yonekura, Akihiko Nagao .....	128
3'-Hydroxy- $\epsilon$ , $\epsilon$ -caroten-3-one inhibits the differentiation of 3T3-L1 cells to adipocytes Eiichi Kotake-Nara, Megumi Hase, Miyuki Kobayashi, Akihiko Nagao .....	129
《食品工学研究領域》 画像認識技術による食品害虫の自動判別 曲山 幸生, 七里 与子, 塚田 佳苗, 宮ノ下 明大, 今村 太郎, 古井 聡, 和田 有史, 石山 壘.....	129
Functional properties of submicron sized rice flour produced by wet media grinding Md. Sharif Hossen, Itaru Sotome, Kazuko Nanayama, Tomoko Sasaki, Hiroshi Okadome .....	129
Effects of milling and cooking conditions of rice on in vitro starch digestibility and blood glucose response Tomoko Sasaki, Tomoya Okunishi, Itaru Sotome, Hiroshi Okadome .....	129
Effect of air-dehydration pretreatment before freezing on the electrical impedance characteristics and texture of carrots Yasumasa Ando, Yuka Maeda, Koichi Mizutani, Naoto Wakatsuki, Shoji Hagiwara, Hiroshi Nabetani .....	129
Non-catalytic alcoholysis process for production of biodiesel fuel by using bubble column reactor S Hagiwara, H Nabetani and M Nakajima .....	130

Modification of Biodiesel Reactor by Using of Triple Obstacle within the Bubble Column Reactor Dyah Wulandani, Fajri Ilham, Yayan Fitriyan, Ahmad Indra Siswantara, Hiroshi Nabetani and Shoji Hagiwara	130
Fluorescence fingerprint as an instrumental assessment of the sensory quality of tomato juices Vipavee Trivittayasil, Mizuki Tsuta, Yoshinori Imamura, Tsuneo Sato, Yuji Otagiri, Akio Obata, Hiroe Otomo, Mito Kokawa, Junichi Sugiyama, Kaori Fujita, Masatoshi Yoshimura	130
Measuring cheese maturation with the fluorescence fingerprint Mito Kokawa, Shoma Ikegami, Akira Chiba, Hiroshi Koishihara, Vipavee Trivittayasil, Mizuki Tsuta, Kaori Fujita, Junichi Sugiyama	130
Freshness estimation of intact frozen fish using fluorescence spectroscopy and chemometrics of excitation-emission matrix Gamal Elmasry, Hiroto Nagai, Keisuke Moria, Naho Nakazawa, Mizuki Tsuta, Junichi Sugiyama, Emiko Okazaki, Shigeki Nakauchi	130
Fiber optics fluorescence fingerprint measurement for aerobic plate count prediction on sliced beef surface Dheni Mita Mala, Masatoshi Yoshimura, Susumu Kawasaki, Mizuki Tsuta, Mito Kokawa, Vipavee Trivittayasil, Junichi Sugiyama, Yutaka Ktamura	131
A gaseous acetic acid treatment to disinfect fenugreek seeds and black pepper inoculated with pathogenic and spoilage bacteria Daisuke Nei, Enomoto Katsuyoshi, Nobutaka Nakamura	131
保蔵温度の異なる緑熟トマトの追熟における果皮色、積算エチレン生成量および果実品質の変化 菅 理哉, 小出 章二, 折笠 貴寛, 中村 宣貴, 椎名 武夫	131
Evaluation of the life cycle of bioethanol produced from soft carbohydrate-rich and common rice straw in Japan with land-use change Takahiro Orikasa, Poritosh Roy, Ken Tokuyasu, Jeung-yil Park, Masakazu Ike, Motohiko Kondo, Yumiko Arai-Sanoh, Nobutaka. Nakamura, Shoji Koide, Takeo Shiina	131
Effect of bioethanol conversion efficiency and ratio of rice paddy area to flatland on energy consumption and CO <sub>2</sub> emission of rice straw transport process in Japan Takahiro Orikasa, Poritosh Roy, Ken Tokuyasu, Nobutaka. Nakamura, Shoji Koide, Takeo Shiina	131
多変量解析を用いた消費者視点のメロンのおいしさ指標の作成 鈴木 美穂子, 坂本 真理, 吉田 誠, 中村 宣貴, 椎名 武夫	132
Method for controlling damage to products subjected to cumulative fatigue considering damage degree at each layer in stacked packaging Hiroaki Kitazawa, Katsuhiko Saito, Yutaka Ishikawa	132
Evaluation and estimation of damage to tree-ripened 'Irwin' mangos from repetitive shock during transportation Yoshihiro Nakanishi, Nobutaka Nakamura, Naoko Hasegawa, Hiroyuki Inamori, Yoshihiro Ogawa, Hiroaki Kitazawa	132
収穫したカラーピーマン果実に対する光照射に伴うカロテノイド生合成関連遺伝子の発現変化 永田 雅靖, 吉田 千恵, 松永 啓	132
Combination of low oxygen and high carbon dioxide treatments alters sprouting of white asparagus Hiroaki Kitazawa, Naoko Hasegawa, Masayasu Nagata, Machiko Fukuda, Shin-ichi Watanabe, Atsushi Yamasaki, Atsuko Uragami	132
種子を用いたダイコン青変症リスク評価法 永田 雅靖, 寺西 克倫	133
プラスチック包装された豆腐の短波帯加熱殺菌 植村 邦彦, 高橋 千栄子, 小林 功	133

Monodisperse aqueous microspheres encapsulating high concentration of L-ascorbic acid: insights of preparation and stability evaluation from straight-through microchannel emulsification Nauman Khalid, Isao Kobayashi, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima, Hiroshi Nabetani	133
Formulation of monodisperse oil-in-water emulsions loaded with ergocalciferol and cholecalciferol by microchannel emulsification: insights of production characteristics and stability Nauman Khalid, Isao Kobayashi, Zheng Wang, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima, Hiroshi Nabetani	133
Preparation of monodisperse aqueous microspheres containing high concentration of L-ascorbic acid by microchannel emulsification Nauman Khalid, Isao Kobayashi, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima, Hiroshi Nabetani	133
Effects of surface treatment and storage conditions of silicon microchannel emulsification plates on their surface hydrophilicity and preparation of soybean oil-in-water emulsion droplets Yanru Zhang, Isao Kobayashi, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima	134
Analysis of disintegration of agar gel particles with different textures using gastric digestion simulator Hiroyuki Kozu, Tomoki Nakata, Mitsutoshi Nakajima, Marcos A. Neves, Kunihiko Uemura, Seigo Sato, Isao Kobayashi, Sosaku Ichikawa	134
Formulation characteristics of triacylglycerol oil-in-water emulsions loaded with ergocalciferol using microchannel emulsification Nauman Khalid, Isao Kobayashi, Zheng Wang, Marcos A. Neves, Kunihiko Uemura, Mitsutoshi Nakajima, Hiroshi Nabetani	134
Assessment of oxidative stability in fish oil-in-water emulsions: effect of emulsification process, droplet size and storage temperature Marcos A. Neves, Zheng Wang, Isao Kobayashi, Mitsutoshi Nakajima	134
Handmade microfluidic device for biochemical applications in emulsion Marsel Murzabaev, Takaaki Kojima, Takuro Mizoguchi, Isao Kobayashi, Brandon J. DeKosky, George Georgiou, Hideo Nakano	134
Efficient encapsulation of a water-soluble molecule into lipid vesicles using W/O/W multiple emulsions via solvent evaporation Takashi Kuroiwa, Kaname Horikoshi, Akihiko Suzuki, Marcos A. Neves, Isao Kobayashi, Kunihiko Uemura, Mitsutoshi Nakajima, Akihiko Kanazawa, Sosaku Ichikawa	135
Production of monodisperse oil-in-water emulsions using asymmetric micro through-holes compactly arranged on a metallic chip Isao Kobayashi, Yanru Zhang, Ran Li, Kunihiko Uemura, Mitsutoshi Nakajima	135
Formulation of uniform-sized agar gel microbeads from water-in-oil emulsion prepared using microchannel emulsification under controlled temperature Takashi KUROIWA, Toru KATSUMATA, Kazuyoshi SUKEDA, Shoto WARASHINA, Isao KOBAYASHI, Kunihiko UEMURA, Akihiko KANAZAWA	135
Effect of esterified oligosaccharides on the formation and stability of oil-in-water emulsions Sunsanee Udomrati, Nauman Khalid, Shoji Gohtani, Mitsutoshi Nakajima, Marcos A. Neves, Kunihiko Uemura, Isao Kobayashi	135
《応用微生物研究領域》 Difuctose dianhydride III producing inulin fructotransferase from <i>Microbacterium</i> sp. S48-1 Kazutomo Haraguchi	136

Characterization of the transcriptional regulation of the tarIJKL locus involved in ribitol-containing wall teichoic acid biosynthesis in <i>Lactobacillus plantarum</i> Satoru Tomita, I-Chiao Lee, Iris I. van Swam, Sjef Boeren, Jacques Vervoort, Peter A. Bron, Michiel Kleerebezem	136
<i>Lactobacillus brevis</i> の凝集を引き起こす物質の探索 齋藤 勝一, 富田 理, 中村 敏英	136
Whole-Genome Sequencing and Comparative Genome Analysis of <i>Bacillus subtilis</i> Strains Isolated from Non-Salted Fermented Soybean Foods Kamada Mayumi, Hase Sumitaka, Fujii Kazuya, Miyake Masato, Sato Kengo, Kimura Keitarou, Sakakibara Yasubumi	136
Identification of Turbid Compounds Generated in Sugarcane Vinegar Kazuhiko Matsunaga, Shinji Setoguchi, Kaori Shimono, Hiroyuki Kamesawa, Toshikazu Nakamura, Kazumi Funane	136
Effect of light on the growth and acid protease production of <i>Aspergillus oryzae</i> . Pushpa S. Murthy, Satoshi Suzuki, Ken-Ichi Kusumoto	137
Acid protease production by <i>Aspergillus oryzae</i> on potato pulp powder with emphasis on glycine releasing activity: a benefit to the food industry Pushpa S. Murthy, Ken-Ichi Kusumoto	137
Culture-independent bacterial community analysis of the salty-fermented fish paste products of Thailand and Laos. Junichiro Marui, Sayvisene Boulom, Wanchai Panthavee, Mari Momma, Ken-Ichi Kusumoto, Kazuhiko Nakahara, Masayoshi Saito	137
麹菌 <i>Aspergillus oryzae</i> の形態関連遺伝子の解析 服部 領太, 楠本 憲一, 柏木 豊, 鈴木 聡	137
食品総合研究所微生物バンクの現状と菌株の省エネルギー保存方法およびデータ管理方法の検討 岩橋 由美子, 鈴木 忠宏, 北村 義明	137
Acetylated Deoxynivalenol Generates Differences of Gene Expression that Discriminate Trichothecene Toxicity Tadahiro Suzuki, Yumiko Iwahashi	138
《食品バイオテクノロジー研究領域》 Rubratoxin-B-induced secretion of chemokine ligands of cysteine–cysteine motif chemokine receptor 5(CCR5) and its dependence on heat shock protein 90 in HL60 cells Hitoshi Nagashima	138
Functional reassignment of <i>Cellvibrio vulgaris</i> EpiA to cellobiose 2-epimerase and an evaluation of the biochemical functions of the 4-O- $\beta$ -D-mannosyl-D-glucose phosphorylase-like protein, UnkA Wataru Saburi, Yuka Tanaka, Hirohiko Muto, Sota Inoue, Rei Odaka, Mamoru Nishimoto, Motomitsu Kitaoka, Haruhide Mori	138
Novel substrate specificities of two lacto-N-biosidases for $\beta$ -linked galacto-N-biose-containing oligosaccharides of globo H, Gb5, and GA1 Aina Gotoh, Toshihiko Katoh, Yuta Sugiyama, Shin Kurihara, Yuji Honda, Haruko Sakurama, Taiho Kambe, Hisashi Ashida, Motomitsu Kitaoka, Kenji Yamamoto, Takane Katayama	138
Crystal structure and substrate recognition of cellobionic acid phosphorylase, which plays a key role in oxidative cellulose degradation by microbes Young-Woo Nam, Takanori Nihira, Takatoshi Arakawa, Yuka Saito, Motomitsu Kitaoka, Hiroyuki Nakai, Shinya Fushinobu	138

Apple SVP family MADS-Box proteins and the tomato pedicel abscission zone regulator JOINTLESS have similar molecular activities T. Nakano, Hiroki Kato, Yoko Shima, Yasuhiro Ito .....	139
CRISPR/Cas9-mediated mutagenesis of the RIN locus that regulates tomato fruit ripening Yasuhiro Ito, Ayako N-Yokoi, Masaki Endo, M. Mikami, Seiichi Toki .....	139
An inverting $\beta$ -1,2-mannosidase belonging to glycoside hydrolase family 130 from <i>Dyadobacter fermentans</i> Takanori Nihira, Kazuhiro Chiku, Erika Suzuki, Mamoru Nishimoto, Shinya Fushinobu, Motomitsu Kitaoka, Ken'ichi Ohtsubo, Hiroyuki Nakai .....	139
Characterization and crystal structure determination of $\beta$ -1,2-mannobiose phosphorylase from <i>Listeria innocua</i> Tomohiro Tsuda, Takanori Nihira, Kazuhiro Chiku, Erika Suzuki, Takatoshi Arakawa, Mamoru Nishimoto, Motomitsu Kitaoka, Hiroyuki Nakai, Shinya Fushinobu .....	139
Design of glycosynthase based on the crystal structure of an inverting glycoside hydrolase family 9 <i>exo</i> - $\beta$ -D-glucosaminidase Yuji Honda, Sachiko Arai, Kentaro Suzuki, Motomitsu Kitaoka, Shinya Fushinobu .....	139
NP24 induces apoptosis dependent on caspase-like activity in <i>Saccharomyces cerevisiae</i> Naoki Higuchi, Yasuhiro Ito, Jun Kato, Jun Ogihara, Takafumi Kasumi .....	140
Fucoxanthin derivatives: synthesis and their chemical properties Shiro Komba, Eiichi Kotake-Nara, Sachiko Machida .....	140
Identification of Clq as a binding protein for advanced glycation end products Miho Chikazawa, Takahiro Shibata, Yukinori Hatasa, Sayumi Hirose, Natsuki Otaki, Fumie Nakashima, Mika Ito, Sachiko Machida, Shoichi Maruyama, and Koji Uchida .....	140
Growth and sporulation defects in <i>Bacillus subtilis</i> mutants with a single <i>rrn</i> operon can be suppressed by amplification of the <i>rrn</i> operon Koichi Yano, Kenta Masuda, Genki Akanuma, Tetsuya Wada, Takashi Matsumoto, Yuh Shiwa, Taichiro Ishige, Hirofumi Yoshikawa, Hironori Niki, Takashi Inaoka, Fujio Kawamura .....	140
大腸菌におけるゲノム重複を介した多剤耐性化 本山 志織, ワナシリ・ワナラット, 稲岡 隆史 .....	140
界面活性剤で可溶化された生体膜タンパク質の熱処理特性の評価 渡邊 康 .....	141
<b>付 録</b>	
農研機構研究報告食品研究部門投稿要領 .....	142
「日本食品科学工学会誌」投稿論文記載要項 .....	144