

# LWT—Food Science and Technology

## Contents

Volume 68, 2016

### Research papers

Characterization of antimicrobial efficacy of photocatalytic polymers against food-borne biofilms <i>X. Weng, J. van Niekerk, S. Neethirajan and K. Warriner</i>	1
Effect of skim milk coated inulin-alginate encapsulation beads on viability and gene expression of <i>Lactobacillus plantarum</i> during freeze-drying <i>L. Wang, X. Yu, H. Xu, Z.P. Aguilar and H. Wei</i>	8
Fiber optics fluorescence fingerprint measurement for aerobic plate count prediction on sliced beef surface <i>D. Mita Mala, M. Yoshimura, S. Kawasaki, M. Tsuta, M. Kokawa, V. Trivittayasil, J. Sugiyama and Y. Kitamura</i>	14
Characterization of <i>Lactobacillus pentosus</i> as a starter culture for the fermentation of edible oyster mushrooms ( <i>Pleurotus</i> spp.) <i>Y. Liu, X.-x. Xie, S.A. Ibrahim, S.G. Khaskheli, H. Yang, Y.-f. Wang and W. Huang</i>	21
Antimicrobial citric acid/poly(vinyl alcohol) crosslinked films: Effect of cyclodextrin and sodium benzoate on the antimicrobial activity <i>C. Birck, S. Degoutin, M. Maton, C. Neut, M. Bria, M. Moreau, F. Fricoteaux, V. Miri and M. Bacquet</i>	27
Lipoxygenase inactivation kinetics and quality-related enzyme activities of narrow-leaved lupin seeds and flakes <i>M. Stephany, P. Eckert, S. Bader-Mittermaier, U. Schweiggert-Weisz and R. Carle</i>	36
Application of electrolyzed water for improving postharvest quality of mushroom <i>M.S. Aday</i>	44
Characterization of phenolic composition in chestnut leaves and beer residue by LC-DAD-ESI-MS <i>P.E.S. Munekata, D. Franco, M.A. Trindade and J.M. Lorenzo</i>	52
Combined effects of ultra-high hydrostatic pressure and mild heat on the inactivation of <i>Bacillus subtilis</i> <i>J. Meng, Y. Gong, P. Qian, J.-Y. Yu, X.-J. Zhang and R.-R. Lu</i>	59
Assessment of the inhibitory effect of free and encapsulated commercial nisin (Nisaplin®), tested alone and in combination, on <i>Listeria monocytogenes</i> and <i>Bacillus cereus</i> in refrigerated milk <i>R.C.R. Martinez, V.O. Alvarenga, M. Thomazini, C.S. Fávaro-Trindade and A.d.S. Sant'Ana</i>	67
Manufacturing the novel sausages with reduced quantity of meat and fat: The product development, formulation optimization, emulsion stability and textural characterization <i>M. Tahmasebi, M. Labbafi, Z. Emam-Djomeh and M.S. Yarmand</i>	76
Biofilm-producing ability and tolerance to industrial sanitizers in <i>Salmonella</i> spp. isolated from Brazilian poultry processing plants <i>R.E. Ziech, A.P. Perin, C. Lampugnani, M.J. Sereno, C. Viana, V.M. Soares, J.G. Pereira, J.P.d.A.N. Pinto and L.d.S. Bersot</i>	85

**Prevalence and diversity of lactic acid bacteria in Chinese traditional sourdough revealed by culture dependent and pyrosequencing approaches**

*T. Liu, Y. Li, J. Chen, F.A. Sadiq, G. Zhang, Y. Li and G. He*

91

**Impact of thermal and high pressure processing on quality parameters of beetroot (*Beta vulgaris L.*)**

*M. Paciulli, I.G. Medina-Meza, E. Chiavaro and G.V. Barbosa-Cánovas*

98

**Evaluation of physicochemical properties of foam mat dried sour cherry powder**

*E. Abbasi and M. Azizpour*

105

**Conjugated linolenic acids and nutraceutical components in Jiaogulan (*Gynostemma pentaphyllum*) seeds**

*C. Zou, H. Shi, X. Liu, Y. Sheng, T. Ding, J. Yan, B. Gao, J. Liu, W. Lu and L. Yu*

111

**Water sorption and diffusion properties of spray-dried dairy powders containing intact and hydrolysed whey protein**

*G.M. Kelly, J.A. O'Mahony, A.L. Kelly and D.J. O'Callaghan*

119

**Brea Gum (from *Cercidium praecox*) as a structural support for emulsion-based edible films**

*M.L. Spotti, J.P. Cecchini, M.J. Spotti and C.R. Carrara*

127

**Nano-encapsulation competitiveness of omega-3 fatty acids and correlations of thermal analysis and Karl Fischer water titration for European anchovy (*Engraulis encrasiculus L.*) oil/β-cyclodextrin complexes**

*M. Ünlüsayın, N.G. Hădărugă, G. Rusu, A.T. Gruia, V. Păunescu and D.I. Hădărugă*

135

**3-chlorotyrosine formation versus other molecular changes induced by hypochlorous acid in proteins: A study using dairy proteins as a model**

*H.N. Bao Loan, B. Kerkaert, T. Cucu, F. Mestdagh and B. De Meulenaer*

145

**Effect of salt and moisture content reduction on physical and microbiological properties of salted, pressed and freeze dried turkey meat**

*M.Y. Yalçın and M. Şeker*

153

**Consumers' attention to functional food labels: Insights from eye-tracking and change detection in a case study with probiotic milk**

*D. Oliveira, L. Machín, R. Deliza, A. Rosenthal, E.H. Walter, A. Giménez and G. Ares*

160

**The effects of ultrasound on quality and nutritional aspects of dried sour cherries during shelf-life**

*K. Siucińska, D. Konopacka, M. Mieszczańska-Frąć and A. Potubok*

168

**Chemical, sensory, and microbiological stability of stored raw peanuts packaged in polypropylene ventilated bags and high barrier plastic bags**

*M.P. Martín, V. Nepote and N.R. Grosso*

174

**Identification of biogenic amines-producing lactic acid bacteria isolated from spontaneous malolactic fermentation of chilean red wines**

*K. Henríquez-Aedo, D. Durán, A. García, M.B. Hengst and M. Aranda*

183

**Impacts of freezing and molecular size on structure, mechanical properties and recrystallization of freeze-thawed polysaccharide gels**

*N. Harnkarnsujarit, K. Kawai and T. Suzuki*

190

**Isolation of lactic acid bacteria from plants of the coastal *Satoumi* regions for use as starter cultures in fermented milk and soymilk production**

*T. Kuda, M. Kataoka, M. Nemoto, M. Kawahara, H. Takahashi and B. Kimura*

202

**In-vitro probiotic characteristics assessment of feruloyl esterase and glutamate decarboxylase producing *Lactobacillus* spp. isolated from traditional fermented millet porridge (kambu koozh)**

*S.K. Palaniswamy and V. Govindaswamy*

208

**Isolation and identification of some antibacterial peptides in the plasmin-digest of β-casein**

*M. Sedaghati, H. Ezzatpanah, M. Mashhadi Akbar Boojar, M. Tajabadi Ebrahimi and F. Kobarfard*

217

**Starch-halloysite nanocomposites containing nisin: Characterization and inhibition of *Listeria monocytogenes* in soft cheese**

*S.M.M. Meira, G. Zehetmeyer, J.M. Scheibel, J.O. Werner and A. Brandelli*

226

**Influence of blanching and drying methods on molecular structure and functional properties of elephant foot yam (*Amorphophallus paeoniifolius*) flour**

*M. Suriya, G. Baranwal, M. Bashir, C.K. Reddy and S. Haripriya*

235

<b>Reduction in the ammonia content of salmon shark meat by a fermented rice bran suspension with the <i>Satoumi</i>-sourced yeast <i>Saccharomyces cerevisiae</i> Misaki-1 and lactic acid bacteria <i>Lactobacillus plantarum</i> Sanriku-SU8 T. Kuda, S. Kondo, Y. Usami, S. Ishizaki, H. Takahashi and B. Kimura</b>	<b>244</b>
<b>Formation of red myoglobin derivatives and inhibition of spoilage bacteria in raw meat batters by lactic acid bacteria and <i>Staphylococcus xylosus</i> P. Li, H. Luo, B. Kong, Q. Liu and C. Chen</b>	<b>251</b>
<b>Effect of antimicrobial mixtures and modified atmosphere packaging on the quality of Argentine hake (<i>Merluccius hubbsi</i>) burgers L.I. Schelegueda, S.B. Delcarlo, M.F. Gliemmo and C.A. Campos</b>	<b>258</b>
<b>Effects of deodorization on the physicochemical index and volatile compounds of purple sweet potato anthocyanins (PSPAs) W. Sun, M. Zhang, H. Chen, D. Zheng and Z. Fang</b>	<b>265</b>
<b>Characterization of Anatolian honeys based on minerals, bioactive components and principal component analysis H. Kaygusuz, F. Tezcan, F. Bedia Erin, O. Yildiz, H. Sahin, Z. Can and S. Kolayli</b>	<b>273</b>
<b>Potential of the solid-state fermentation of tomato by products by <i>Fusarium solani pisi</i> for enzymatic extraction of lycopene S. Azabou, Y. Abid, H. Sebii, I. Felfoul, A. Gargouri and H. Attia</b>	<b>280</b>
<b><i>Lactobacillus plantarum</i> strains for multifunctional oat-based foods P. Russo, M.L.V. de Chiara, V. Capozzi, M.P. Arena, M.L. Amodio, A. Rascón, M.T. Dueñas, P. López and G. Spano</b>	<b>288</b>
<b>Faba bean flavour and technological property improvement by thermal pre-treatments Z.-q. Jiang, M. Pulkkinen, Y.-j. Wang, A.-M. Lampi, F.L. Stoddard, H. Salovaara, V. Piironen and T. Sontag-Strohm</b>	<b>295</b>
<b>Analogy in selenium enrichment and selenium speciation between selenized yeast <i>Saccharomyces cerevisiae</i> and <i>Hericium erinaceus</i> (lion's mane mushroom) O. Egressy-Molnár, L. Ouerdane, J. Győrfi and M. Dernovics</b>	<b>306</b>
<b>GC-MS based metabolomics approach of Kimchi for the understanding of <i>Lactobacillus plantarum</i> fermentation characteristics S.-E. Park, S.-A. Yoo, S.-H. Seo, K.-I. Lee, C.-S. Na and H.-S. Son</b>	<b>313</b>
<b>Survival of probiotic lactic acid bacteria immobilized in different forms of bacterial cellulose in simulated gastric juices and bile salt solution K. Fijałkowski, D. Peitler, R. Rakoczy and A. Żywicka</b>	<b>322</b>
<b>Carrier systems for bacteriophages to supplement food systems: Encapsulation and controlled release to modulate the human gut microbiota M. Samilebe, F. Ergin, N. Wagner, H. Neve, A. Küçükçetin, C.M.A.P. Franz, K.J. Heller, J. Hinrichs and Z. Atamer</b>	<b>334</b>
<b>Effect of selected pre-treatments on folate recovery of granule suspensions prepared from hen egg yolk N. Naderi, J.D. House and Y. Pouliot</b>	<b>341</b>
<b>Can lutein replace annatto in the manufacture of Prato cheese? D. Sobral, R.G. Bueno Costa, G.M. Machado, J.C. Jacinto de Paula, V.A. Martins Teodoro, N.M. Nunes, A.C. dos Santos Pires and M.S. Pinto</b>	<b>349</b>
<b>Physical, antioxidant and antimicrobial properties of chitosan films containing <i>Eucalyptus globulus</i> essential oil J. Hafsa, M.a. Smach, M.R. Ben Khedher, B. Charfeddine, K. Limem, H. Majdoub and S. Rouatbi</b>	<b>356</b>
<b>Sensory analysis of natural table olives: Relationship between appearance of defect and gustatory-kinaesthetic sensation changes B. Lanza and F. Amoruso</b>	<b>365</b>
<b>Mandarin essential oils inhibit quorum sensing and virulence factors of <i>Pseudomonas aeruginosa</i> M.C. Luciardi, M.A. Blázquez, E. Cartagena, A. Bardón and M.E. Arena</b>	<b>373</b>
<b>The comparison of quality and microbiological characteristic of hamburger patties enriched with green tea extract using three techniques: Direct addition, edible coating and encapsulation E.B. Özvural, Q. Huang and M.L. Chikindas</b>	<b>385</b>
<b>Carrot pomace enhances the expansion and nutritional quality of corn starch extrudates N. Kaisangsri, R.J. Kowalski, I. Wijesekara, O. Kerdchoechuen, N. Laohakunjit and G.M. Ganjyal</b>	<b>391</b>

<b>Combined effects of ozone and freeze-drying on the shelf-life of <i>Broiler</i> chicken meat M.J. Cantalejo, F. Zouaghi and I. Pérez-Arnedo</b>	<b>400</b>
<b>Image processing based technique for classification of fish quality after cypermethrine exposure M.K. Dutta, N. Sengar, N. Kamble, K. Banerjee, N. Minhas and B. Sarkar</b>	<b>408</b>
<b>Selective antibacterial effect on <i>Campylobacter</i> of a winemaking waste extract (WWE) as a source of active phenolic compounds E. Mingo, J.M. Silván and A.J. Martínez-Rodríguez</b>	<b>418</b>
<b>Evaluation of the safety and quality of wash water during the batch washing of <i>Pangasius</i> fish (<i>Pangasius hypophthalmus</i>) in chlorinated and non-chlorinated water A.N. Tong Thi, I. Sampers, S. Van Haute, S. Samapundo, B. De Meulenaer, M. Heyndrickx and F. Devlieghere</b>	<b>425</b>
<b>Changes in physicochemical properties and stability of peanut oil body emulsions by applying gum arabic R. Sukhotu, S. Guo, J. Xing, Q. Hu, R. Wang, X. Shi, K. Nishinari, Y. Fang and S. Guo</b>	<b>432</b>
<b>Substitution of ice by a curing salt solution during meat batter production using the vane pump-grinder technology S.B. Irmscher, E.-M. Terjung, M. Gibis, K. Herrmann, R. Kohlus and J. Weiss</b>	<b>439</b>
<b>Design of microcapsules containing <i>Lactococcus lactis</i> subsp. <i>lactis</i> in alginate shell and xanthan gum with nutrients core M. Bekhit, L. Sánchez-González, G. Ben Messaoud and S. Desobry</b>	<b>446</b>
<b>Preparation of poly(lactide)/poly(butylene adipate-co-terephthalate) blend films using a solvent casting method and their food packaging application L.-F. Wang, J.-W. Rhim and S.-I. Hong</b>	<b>454</b>
<b>The effect of fruit cultivar/origin and storage time on sorbets quality C. Hipólito, R. Ramalheira, S. Beirão da Costa and M. Moldão-Martins</b>	<b>462</b>
<b>Effect of enzymatic hydrolysis on the production of free amino acids from boarfish (<i>Capros aper</i>) using second order polynomial regression models K.S. Ojha, C. Alvarez, P. Kumar, C.P. O'Donnell and B.K. Tiwari</b>	<b>470</b>
<b>Evaluation of highly unsaturated oleogels as shortening replacer in a short dough product B. Mert and I. Demirkesen</b>	<b>477</b>
<b>Evaluation of alpha-tocopherol stability in soluble dietary fiber based nanofiber J. Li, A. Chotiko, D.A. Narcisse and S. Sathivel</b>	<b>485</b>
<b>Trace elements in <i>Camellia sinensis</i> marketed in southeastern Brazil: Extraction from tea leaves to beverages and dietary exposure R.F. Milani, M.A. Morgano and S. Cadore</b>	<b>491</b>
<b>Physical characteristics of parboiled Korean glutinous rice (<i>Olbyeossal</i>) using a modified method A.H. Hapsari, S.-J. Kim and J.-B. Eun</b>	<b>499</b>
<b>Capillary zone electrophoresis as alternative tool for rapid identification and quantification of viable <i>Saccharomyces cerevisiae</i> cells F. Crispò, A. Capece, A. Guerrieri and P. Romano</b>	<b>506</b>
<b>Influence of acetic and lactic acids on cocoa flavan-3-ol degradation through fermentation-like incubations V.J. Eyamo Evina, C. De Taeye, N. Niemenak, E. Youmbi and S. Collin</b>	<b>514</b>
<b>Hydrolysis of rapeseed meal protein under simulated duodenum digestion: Kinetic modeling and antioxidant activity C. Zhou, X. Yu, X. Qin, H. Ma, A.E.A. Yagoub and J. Hu</b>	<b>523</b>
<b>Development of a freshness-assessment model for a real-time online monitoring system of packaged commercial milk in distribution B.-S. Kim, M. Lee, J.-Y. Kim, J.-Y. Jung and J. Koo</b>	<b>532</b>
<b>Technological quality and chemical composition of puffed grains from einkorn (<i>Triticum monococcum</i> L. subsp. <i>monococcum</i>) and bread wheat (<i>Triticum aestivum</i> L. subsp. <i>aestivum</i>) A. Hidalgo, S. Scuppa and A. Brandolini</b>	<b>541</b>

<b>Effect of frying process on furan content in foods and assessment of furan exposure of Spanish population I. Juániz, C. Zocco, V. Mouro, C. Cid and M.P. De Peña</b>	<b>549</b>
<b>EGFP-based evaluation of temperature inducible native promoters of industrial ale yeast by using a high throughput system S. Fischer, C. Engstler, S. Procopio and T. Becker</b>	<b>556</b>
<b>Effect of traditional nixtamalization on anthocyanin content and profile in Mexican blue maize (<i>Zea mays</i> L.) landraces S. Mora-Rochín, N. Gaxiola-Cuevas, J.A. Gutiérrez-Uribe, J. Milán-Carrillo, E.M. Milán-Noris, C. Reyes-Moreno, S.O. Serna-Saldivar and E.O. Cuevas-Rodríguez</b>	<b>563</b>
<b>Invitro study of riboflavin producing lactobacilli as potential probiotic K. Thakur and S.K. Tomar</b>	<b>570</b>
<b>Gene expression analysis for <i>Listeria monocytogenes</i> following exposure to pulsed light and continuous ultraviolet light treatments A.R. Uesugi, L.C. Hsu, R.W. Worobo and C.I. Moraru</b>	<b>579</b>
<b>Enhancing dispersion stability of alpha-tocopherol in aqueous media using maize starch and ultrasonication C. Ren, E.Y. Park, J.-Y. Kim and S.-T. Lim</b>	<b>589</b>
<b>Comparative extraction processes, volatile compounds analysis and antioxidant activities of essential oils from <i>Cirsium japonicum</i> Fisch. ex DC and <i>Cirsium setosum</i> (Willd.) M.Bieb Q.-H. Zeng, J.-B. Zhao, J.-J. Wang, X.-W. Zhang and J.-G. Jiang</b>	<b>595</b>
<b>Physicochemical and biosorption properties of novel exopolysaccharide produced by <i>Enterococcus faecalis</i> P. Venkatesh, M. Balraj, R. Ayyanna, D. Ankaiah and V. Arul</b>	<b>606</b>
<b>Improvement of bioactivity of soybean meal by solid-state fermentation with <i>Bacillus amyloliquefaciens</i> versus <i>Lactobacillus</i> spp. and <i>Saccharomyces cerevisiae</i> C.-H. Chi and S.-J. Cho</b>	<b>619</b>
<b>Quality of bread baked from frozen dough – effects of rye, and sugar content, kneading time and proofing profile C. Öhgren, N. Fabregat and M. Langton</b>	<b>626</b>
<b>Microwave pretreatment effects on the changes in seeds microstructure, chemical composition and oxidative stability of rapeseed oil M. Wroniak, A. Rękas, A. Siger and M. Janowicz</b>	<b>634</b>
<b>Design and characterization of spice fused tamarind starch edible packaging films C. Chandra mohan, K.R. Rakhavan, K. Sudharsan, K. Radha krishnan, S. Babuskin and M. Sukumar</b>	<b>642</b>
<b>Effect of fat replacement on flow and thermal properties of dairy powders K. Szulc, J. Nazarko, E. Ostrowska-Ligeza and A. Lenart</b>	<b>653</b>
<b>The comparison of the effect of sodium caseinate, calcium caseinate, carboxymethyl cellulose and xanthan gum on rice-buckwheat dough rheological characteristics and textural and sensory quality of bread I. Burešová, L. Masaříková, L. Hřívna, S. Kulhanová and D. Bureš</b>	<b>659</b>
<b>Calcium-alginate beads loaded with gallic acid: Preparation and characterization J. Li, S.Y. Kim, X. Chen and H.J. Park</b>	<b>667</b>
<b>Characterization of edible gum cordia film: Effects of beeswax M.A. Haq, A. Hasnain, F.A. Jafri, M.F. Akbar and A. Khan</b>	<b>674</b>
<b>Technological, phenotypic and genotypic characterization of lactobacilli from Graviera Kritis PDO Greek cheese, manufactured at two traditional dairies P. Tsafrikidou, D. Bozoudi, S. Pavlidou, C. Kotzamanidis, M. Hatzikamari, A. Zdragas and E. Litopoulou-Tzanetaki</b>	<b>681</b>
<b>Development of kefir-based probiotic beverages with DNA protection and antioxidant activities using soybean hydrolyzed extract, colostrum and honey F.A. Fiorda, G.V. de Melo Pereira, V. Thomaz-Soccol, A.P. Medeiros, S.K. Rakshit and C.R. Soccol</b>	<b>690</b>
<b>Quality assessment of gluten-free pasta prepared with a brown rice and corn meal blend via thermoplastic extrusion E.M.M.d. Silva, J.L.R. Ascheri and D.P.R. Ascheri</b>	<b>698</b>

**Enzyme assisted degradation of potential soy protein allergens with special emphasis on the technofunctionality and the avoidance of a bitter taste formation**

*P. Meinlschmidt, U. Schweiggert-Weisz, V. Brode and P. Eisner*

707

**Effect of various protease inhibitors on heat-induced myofibrillar protein degradation and gel-forming ability of red tilefish (*Branchiostegus japonicus*) meat**

*K. Takahashi, K. Kurose, E. Okazaki and K. Osako*

717

**Effect of various blends of camel chymosin and microbial rennet (*Rhizomucor miehei*) on microstructure and rheological properties of Iranian UF White cheese**

*M. Soltani, O.S. Boran and A.A. Hayaloglu*

724

#### **Short communications**

**Small deformation rheological properties of dough are useful tool to predict the effects of modest sodium reduction on flour tortilla quality**

*Y.E. Tuncil, T. Jondiko, M.E. Castell-Perez, A.F. Puerta-Gomez and J.M. Awika*

329

**Tyrosine deposits in brines of salted natural sausage casings of bovine origin**

*L. Kröckel, H. Schmidt and S. Andrée*

381

**The optimization of spray drying process of *Lactobacillus reuteri***

*Y. Liu, Y. Li, T. Shi, J. Zhao, H. Wang, T. Liu, S. Yue, J. Zhou, L. Yu, Y. Zhou and Z. Zhu*

615