

Table of contents

Introduction <i>A. Méndez-Vilas</i>	19
Part 1 – Environmental microbiology – biodeterioration & biodegradation – bioremediation	
Ability of <i>Serratia marcescens</i> UCP/WFCC 1549 for biosurfactant production using industrial wastes and fuels biodegradation <i>D. Montero-Rodríguez, R.F.S. Andrade, D.L.R. Ribeiro, R.A. Lima, H.W.C. Araújo and G.M. Campos-Takaki</i>	22
An individual-based model for the study of <i>Paracoccus denitrificans</i> , a denitrifying bacterium <i>P. Araujo, A. Gras and M. Ginovart</i>	28
Azo dyes: toxicological aspects of biosorption and biodegradation <i>E.J.R. Almeida, G.C. Santos, E.B. Guari, R.J. Pedro and C.R. Corso</i>	34
Biodegradation of a mixture of two PAH under different conditions by bacterial consortium isolated from sediment of the Bay of Cartagena <i>M. Cabrera Ospino, N. Pino Rodriguez and J.G. Peñuela Mesa</i>	40
Biodiesel and vegetable oils in environment: biodegradation and toxicity through colorimetric analysis <i>R.N. Montagnolli, P.R.M. Lopes, J.M. Cruz, I.S. Tamada and E.D. Bidoia</i>	46
Biological remediation of alkaline cement kiln dust for sustainable environment <i>P. Kunal, A. Rajor and R. Siddique</i>	52
Bioremediation strategies with <i>Pseudomonas</i> sp. ADP in worst-case scenarios of soil contamination with chlorinated s-triazines <i>C.A. Viegas, V. Silva, C. Mateus, S. Chelinho, M. Moreira-Santos, J. Gonçalves, V. Varela, R. Ribeiro, A.M. Fialho and J.P. Sousa</i>	59
Characterization of <i>Aspergillus niger</i> isolated from Caatinga soil with potential of biosurfactant production <i>G.K.B. Silva, J.M.N. Lima, N.R. Andrade Silva, T.A.L. Silva, R.N. Barbosa, N.T. Oliveira, K. Okada and G.M. Campos-Takaki</i>	65
Chitosan membranes of low and medium molecular weight as promising adsorbents of Cd (II) from aqueous solution <i>L.R. Ramos Berger, C.E. La Rotta Hernández, T.C. Montenegro Stamford, P. Mendes de Souza, L. de Oliveira Franco and G.M. de Campos-Takaki</i>	70
Compost incorporation in contaminated soil affects heavy metal mobility and accumulation in spinach <i>S. Shilev, M. Naydenov, V. Gachev, I. Rangova and T. Babrikov</i>	76
Decline in peroxidase and catalases by lindane may cause an increase in reactive oxygen species in <i>Saccharomyces cerevisiae</i> <i>T. Pita, I. Alves-Pereira and R. Ferreira</i>	83
Industrial, medical and environmental applications of microorganisms	7

Degradation of fuels by <i>Pseudomonas aeruginosa</i> UCP/WFCC 0099 wild and acclimated on diesel <i>D.L.R. Ribeiro, D. Montero-Rodríguez, R.F.S. Andrade, R.A. Lima, A.M. Silva, G.M. Campos-Takaki and M.L.A.P.F. Palha</i>	88
Degradation of hydroxylated phenols by an <i>Aspergillus fumigatus</i> strain isolated from Antarctica <i>M. Gerginova, N. Peneva, J. Manasiev and Z. Alexieva</i>	93
Effect of abiotic stress factors on phosphate solubilisation by <i>Aspergillus niger</i> in submerged and solid-state fermentations <i>D. Lopez Zafra, G. Mendes, B. Eihler-Löbermann, N. Vassilev and M. Vassileva</i>	99
Elimination of antibiotic resistance in <i>Pseudomonas aeruginosa</i> UCP/WFCC 1567 by cadmium treatment <i>J.C. Vilar Júnior, L.M.L. Acioly, M.V. Leite, A.A. Barbosa da Silveira, A.E. Nascimento and G.M. Campos-Takaki</i>	104
Evaluation of biodegradation process of textile azo dye in solution by <i>Aspergillus oryzae</i> by UV-VIS and FTIR analysis <i>G.C. Santos, E.J.R. Almeida and C.R. Corso</i>	109
Influence of two agroindustrial by-products in the production of biosurfactant by <i>Mucor circinelloides</i> <i>T.A.L. Silva, F.C.G. Almeida, M.C. Freitas-Silva, P.M. Souza, N.S.A.A. Marques and G.M. Campos-Takaki</i>	115
Isolation, identification and phenotypic characterisation of <i>Rhizopus</i> strains isolated from Caatinga soil in Pernambuco, Brazil <i>J.M. Negreiros Lima, G.K. Barbosa Silva, C.C. Santos Cordeiro, M.C. Mota Lins, L. Oliveira Franco, C.A. Alves da Silva, K. Okada and G.M. Campos-Takaki</i>	119
Microbial community associated with 'Black Powder' in natural gas pipelines <i>M. Albokari, A. Ibrahim and N. Alkhomshi</i>	124
Modeling and analysis of a high cell density fermentation process for lactic acid production from low-grade biomass <i>A.P. Mathews and Z. Kang</i>	130
Molecular biodiversity of ciliate metallothioneins: a gene response to metal stress <i>P. de Francisco Martínez, A. Martín-González and J.C. Gutiérrez Fernández</i>	136
Nitrogen is essential to extend the fermentative growth of <i>Saccharomyces cerevisiae</i> in the presence of isotopururon <i>M. Candeias, I. Alves-Pereira and R. Ferreira</i>	142
Physiological aspects of metal resistance in <i>Pseudomonas</i> bacteria isolated from sediments of Ostrava Lagoons, Czech Republic <i>H. Vojtková</i>	147
Production of biosurfactants by <i>Pseudomonas</i> species cultivated in low-cost substrates <i>L.A. Sarubbo, N.M.P. Rocha e Silva, I.N.S. Ferreira, F.C.P. Rocha e Silva, J.M. Luna and R.D. Rufino</i>	153

Production of surface active agent and biodegradation fuel by acclimated <i>Rhodotorula glutinis</i> UCP/WFCC 1555 on diesel oil <i>R.F.S. Andrade, D. Montero-Rodríguez, D.L.R. Ribeiro, R.A. Lima, H.W.C. Araújo, A. Pessoa and G.M. Campos-Takaki</i>	158
Pyrene removal by <i>Candida lipolytica</i> UCP/WFCC 0988 under mixed substrates <i>M.H. Vance-Harrop, R.K. Shiosaki, K. Fukushima, N.B. Gusmão and G.M. Campos-Takaki</i>	164
Quorum Sensing, Quorum Quenching and plants: a brief and basic review <i>L. Simón González, A. Probanza and P. Jiménez Gómez</i>	170
Recovering environmental microorganisms for <i>ex-situ</i> oil sands process water remediation <i>M.A. Demeter, J. Lemire, G. Yue, I. George, H. Ceri and R.J. Turner</i>	176
Respirometric method applied to the biodegradation of mixtures of diesel and biodiesel <i>P.R.M. Lopes, I.S. Tamada, J.M. Cruz, R.N. Montagnolli and E.D. Bidoia</i>	182
Study of the biosorptive interaction between azo dyes and cells of <i>Saccharomyces cerevisia</i> irradiated with ultrasound <i>P. Ceron, C.R. Corso, L.G. Morão, H.B. Pecora, M.J.S. Martiarena, E.B. Guari and R.N. Domingos</i>	186
Survival and persistence of <i>Bacteroides</i> species as faecal indicators and the recovery of 16S rRNA markers under controlled conditions <i>K.R. Hussein, P.L. Waines, G. Glegg and G. Bradley</i>	191
Synergistic nutrient removal by <i>Phragmites</i> and <i>Kyllinga</i> species from a constructed rhizofilter system in Durban, South Africa <i>M.S Mthembu, C.A. Odinga, F.M. Swalaha and F. Bux</i>	197
Part 2 – Agriculture, soil, forest microbiology	
Bioprotector with diazotrophic bacteria and fungi chitosan on grape yield and nutritional status applied in two depths <i>N.P. Stamford, S. Silva Junior, T.L.M. Stamford, R.S. Santana, C.E.R.S. Santos and T.C.M. Stamford</i>	204
Detection and diagnosis of bacterial wetwood in <i>Tilia americana</i> and <i>Ulmus americana</i> sapwood using a CP electronic-nose <i>A.D. Wilson</i>	209
Distinctive features of polyphenol oxidase in wood hedgehog (<i>Hydnum repandum</i>) mushroom <i>E. Keyhani and J. Keyhani</i>	215
Engineering of symbiotic bacteria for the sustainable crop production: search for the evolutionary based opportunities <i>N. Provorov, O. Onishchuk, E. Chizhevskaya, N. Vorobyov, T. Zatovskaya, O. Kurchak, S. Yurgel and B. Simarov</i>	221
Enzymatic activities and antagonism against phytopathogenic fungi of actinomycetes isolated from environmental samples <i>A. Vicente Lasa, A. González Pellicer, F. Fornes Sebastià, R.M Belda Navarro and G. Cuesta Amat</i>	227

Molecular responses of <i>Erwinia amylovora</i> to low temperatures in oligotrophic conditions <i>R.D. Santander, L. Montes and E.G. Biosca</i>	233
Reuse of sewage sludge and tree pruning on composting <i>M.G.C. Araújo, S.C. Paiva, R.C.C. Jordão, C.D.C. Albuquerque and A.A. Salgueiro</i>	238
Soil biofumigant treatments for control of the alien pathogen <i>Phytophthora cinnamomi</i> <i>P. Ríos, S. Obregón, A. de Haro and M.E. Sánchez</i>	243
Part 3 – Food microbiology	
Ability to scavenge free radicals by apple pulp reversed the stress profile induced by vanadium in <i>Saccharomyces cerevisiae</i> <i>J. Agostinho R. Ferreira and I. Alves-Pereira</i>	250
Barley, a potential source of ochratoxin A in food in the framework of climate change <i>E.M. Mateo, J.V. Gimeno-Adelantado, J.M. Soria, M.A. García-Esparza, R. Mateo-Castro and M. Jiménez</i>	255
Characterization and selection of LAB isolated from artisanal Petrovac sausage for their potential use as starter cultures <i>B. Danilović, T. Žugić-Petrović, Lj. Petrović, D. Savić</i>	261
Clonal dissemination of methicillin-resistant <i>Staphylococcus epidermidis</i> in bovine milk <i>P.Y. Faccioli-Martins, D.F.M. Riboli, M.F. Bonesso and M.L.R.S. Cunha</i>	267
Development of possibility of natural juice using <i>Ziziphus jujuba</i> and Spirulina <i>A. Benahmed Djilali, H. Mahouel, N. Mohand Kaci, D. Ouarzene, M. Bouksaim and S. Benamara</i>	272
Easy and rapid detection and identification of yeasts in winemaking samples by flow cytometry and/or FISH <i>O. Lucio, S. Ferrer and I. Pardo</i>	277
Effect of natural detergent solutions against <i>Escherichia coli</i> growth in fresh-cut lettuce <i>I.R. Maldonade and E.J. Sanjinez-Argandoña</i>	283
Enological characteristics of β -glucosidase and β -xylosidase activities from non- <i>Saccharomyces</i> yeasts isolated from Bobal musts <i>J.J. Mateo, C. López and S. Maicas</i>	288
<i>Enterobacteriaceae</i> isolates resistant to beta-lactam antibiotics in fresh vegetables marketed in Valencia (Spain) <i>H. Rico, D. Gozalbo and M. Pilar Falomir</i>	294
Evaluation of the antimicrobial activity of natural extracts upon wine spoilage microorganisms <i>M.F. Pereira, D.M. Moreira, E.M. Costa, S. Silva, M.M. Pintado and J.A. Couto</i>	299
Exploring the possibility of using <i>Kazachstania exigua</i> (ex. <i>Saccharomyces exiguus</i>) in wine production <i>E. Vaudano, E. Bertolone and M. Petrozziello</i>	304

Food application of fibersol-2 desalted by yeast and calcium chelated fibersol-2 <i>A. Oumar Bangoura, T. Jian, Q. He and S. Umar Lule</i>	310
Identification of multi-copper oxidase enzymes from LAB able to degrade biogenic amines <i>S. Callejón, R. Sendra, S. Ferrer and I. Pardo</i>	315
Identification of resistance mechanisms in coagulase-negative staphylococci of food and animal origin <i>K. Vladimir and E. Strakova</i>	321
Inhibition of acid resistant <i>Salmonella</i> Typhimurium on raw chicken meat using a combination of natural food additives <i>H. Al-Khanaq, V. Kuri and J. Beal</i>	325
Molecular subtyping of human and food-environmental <i>Listeria monocytogenes</i> isolates in northern Italy (2012) <i>E. Amato, M. Tilola, N.M. Losio, A. Riva and M.M. Pontello</i>	331
Investigating candidate factors influencing bovine spongiform encephalopathy brainstem sample quality in a beef abattoir <i>T.G. Kennedy</i>	337
Microbial viability of alginate and chitosan solutions applied to smoked sea bass fillets (<i>Dicentrarchus labrax</i>) <i>O. Martínez González, L. Epelde Azcue, M.C. de Vega Castaño, M.S. Vicente Martín, C. Casas Valencia and J. Salmerón Egea</i>	343
Nitrogen metabolic profile of <i>Lactococcus lactis</i> subsp. <i>cremoris</i> strains under stress conditions <i>R. Fernández-Pérez, L. Díez Aldama, M. González Lázaro, M. Zarazaga Chamorro, C. Torres Manrique, C. Tenorio Rodriguez, O.P. Kuipers and F. Ruiz Larrea</i>	347
Novel approach to the microbial decontamination of wheat sprouts: photoactivated chlorophyllin-chitosan complex <i>I. Buchovec, V. Pamedytyte, R. Gruskiene and Z. Luksiene</i>	352
Probiotic strain <i>Lactobacillus plantarum</i> 1K reduces <i>Salmonella enterica</i> serovar Typhimurium infection in mice <i>J. Frece, D. Kovačević, F. Delaš, K. Mastanjević and K. Markov</i>	357
Production and purification of milk-clotting protease produced by local fungal <i>Mucor</i> sp. in solid cultures <i>S. Bensmail, F. Lahouari, F.Z. Kouadri, S. Talantikit and F. Fazouane</i>	362
Production of a malolactic fermentation starter culture using autochthonous <i>O. oeni</i> strains to reduce the histamine content in red wine <i>C. Berbegal, Y. Benavent-Gil, I. Pardo, E. Izcara, E. Navascués and S. Ferrer</i>	369
Survey on enzymatic activities present in <i>Oenococcus oeni</i> strains isolated from must and wines <i>L.E. Cruz-Pio, Y. Benavent-Gil, S. Ferrer and I. Pardo</i>	375

The impact of high hydrostatic pressure on native microflora and the colour of beetroot juice: a preliminary shelf-life study	380
<i>B. Sokolowska, S. Skapska, M. Fonberg-Broczek, J. Niezgoda, M. Rutkowska, N. Dobros and S. J. Rzoska</i>	
The production and antimicrobial activity of bacteriocin produced by <i>Lactobacillus paracasei</i>	385
<i>B. Milićević, B. Danilović, D. Savić, M. Kocić, N. Džinić and N. Milosavljević</i>	
Viability of <i>Lactobacillus acidophilus</i> and <i>Bifidobacter breve</i> encapsulated into polysaccharide particles	391
<i>P. Matoušková, J. Hurtová, A. Lichnová, P. Benešová, S. Obruča and I. Márová</i>	
Part 4 – Industrial microbiology	
Bio-hydrogen potential of agro-industrial wastewaters	398
<i>F.J. Fernandez-Morales</i>	
Comparative studies on production of bacterial cellulose from <i>Acetobacter</i> sp. and application as carrier for cell culturing	404
<i>A. Mathur, P. Sharma, N. Goswami, A. Sahai, A. Dua, A.R. Das, H. Kaur, S. Kukal, M.S. Dayal, S. Arora, P. Mishra, V. Jain and G. Mathur</i>	
Growth and chitin and chitosan production by <i>Cunninghamella elegans</i> and <i>Rhizopus arrhizus</i> varying the carbon/nitrogen ratio	408
<i>L.R. Ramos Berger, T.C. Montenegro Stamford, T. Montenegro Stamford-Arnaud, S.R. Cabral de Alcântara, M.A. Barbosa de Lima and G.M. Campos-Takaki</i>	
Controlled simultaneous production of pullulan and poly-L-malate by <i>Aureobasidium pullulans</i>	414
<i>P. Benešová, S. Obruča, V. Ondruška, P. Matoušková, and I. Márová</i>	
Economic liquid growth medium development for high-rate production of cellular biomass and lactic acid of <i>Lactococcus lactis</i>	419
<i>M.-P. Zacharof and R.W. Lovitt</i>	
Effect of electromagnetic fields on the bacteria <i>Rhodococcus erythropolis</i>	425
<i>L. Kříklavová, T. Dub, M. Truhlář, T. Janoušek, M. Bohatá and T. Lederer</i>	
Lipase extracts from wild microbial strains to produce biofuel without glycerol	430
<i>C. Luna, L. Sánchez, E.D. Sancho, E. Mellado, D. Cánovas, J. Calero, D. Luna, A. Posadillo, F.M. Bautista, A.A. Romero and C. Verdugo</i>	
Fungal chitosan: a suitable biomaterial for cell culturing	436
<i>A. Mathur, R. Chhabra, A. Sachdeva, P. Sharma and G. Mathur</i>	
Generation of thermostable enzyme genes using spontaneous mutations in thermophile <i>Geobacillus kaustophilus</i> HTA426	441
<i>H. Suzuki, J. Kobayashi, K. Wada, M. Furukawa, and K. Doi</i>	
Impact of organic load on bio-hydrogen generation	447
<i>A. Gonzalez del Campo and F.J. Fernandez-Morales</i>	

Innovated approach to produce 2G ethanol from sugarcane bagasse by immobilized cells of a xylose-fermenting Brazilian yeast <i>F.A.F. Antunes, T.S.S. Milessi, A.K. Chandel, V.P. Moraes, W.L.C. Freitas and S.S. da Silva</i>	453
Nitrifying bacteria generate microbially induced corrosion in cooling water systems <i>N.J. Naik</i>	458
Production of biodiesel-like biofuel by enzymatic extracts from wild strains in vegetable oil environments <i>C. Luna, A. Escobar-Niño, E.D. Sancho, E. Mellado, D. Cánovas, D. Luna, J. Calero, A. Posadillo, F. M. Bautista, A. A. Romero, C. Verdugo</i>	464
Poly- β -hydroxybutyrate accumulation in <i>Bradyrhizobium japonicum</i> depends on proteins referred to as phasins <i>K. Yoshida, A. Motokubota, K. Tanaka, and S. Takenaka</i>	470
Production of electrogenic pigments from new fungal sources applied as electron shuttles in biofuel cells <i>P.H. Da Silva, K.V. Morant, G.M. Campos Takaki and C.E. La Rotta</i>	476
Production of lipases and proteases by <i>Bacillus licheniformis</i> in the presence of cheese whey <i>M.A. Silva, A.A. Salgueiro and E.B. Tambourgi</i>	482
Part 5 – Medical microbiology – antimicrobial agents and chemotherapy – resistance	
Antibacterial activity of <i>Marrubium vulgare</i> against wound infections: an alternative way to antibiotics <i>K. Side Larbi, A. Kaf, A. Meddah and D. Nahnouh</i>	488
Atmospheric cold plasma: promising tool for inactivation of biofilms <i>D. Ziuzina, S. Patil, P.J. Cullen and P. Bourke</i>	494
Bacteriophages in green biotechnology: the utilization of drinking water <i>B. Weber-Dąbrowska, M. Żaczek, B. Dziedzic, M. Lusiak-Szelachowska, M. Kiejzik, A. Górski, B. Gworek, K. Wierzbicki and A. Eymontt</i>	500
Biofilm production and antibiotic resistance of <i>Staphylococcus aureus</i> on conjunctival swab taken from diabetic patients <i>S.A. Kivanç and M. Kivanç</i>	505
Chloramphenicol-induced apoptosis and necrosis in <i>Candida utilis</i> yeast cells <i>E. Keyhani</i>	511
Comparative analysis of antimicrobial and antioxidant potential of <i>Ginkgo biloba</i> microemulsions and extract <i>M. Singh, S. Malik and G. Mathur</i>	517
Genes encoding efflux pumps and resistance to quaternary ammonium compounds in strains of <i>Acinetobacter baumannii</i> <i>Y. Ramos and G. Alonso</i>	521

Experience in use of polyvalent bacteriophage ‘Sektstaphag’ for treatment of inflammatory diseases in the genital system <i>A.P. Godovalov, L.P. Bykova and T.Yu. Danielyan</i>	526
Influence of bacteriophage preparations on migratory activity of human granulocytes <i>in vitro</i> <i>A. Kurzepa-Skaradzinska, G. Skaradzinski, A. Troszok, B. Weber-Dabrowska, M. Zaczek, T. Maj, A. Slawek, W. Rymowicz and A. Gorski</i>	529
Inhibitory activity of lactic acid bacteria against <i>Streptococcus mutans</i> and its biofilm <i>A. Kayahan Kivanç, S. Tahtacı and M. Kivanç</i>	535
Lactobacilli and its metabolites as potential probiotics against <i>Gardnerella vaginalis</i> <i>C. Felgueiras, T.B. Cereija, A. Machado, N. Cerca and L.R. Rodrigues</i>	541
Modelling microbiological quality dynamics of Suquía River in Córdoba, Argentina <i>J.V. Pavan, P.A. Barril, L.C. Martínez, M.O. Giordano, G. Masachessi, L.J. Ferreyra, M.B. Isa, G. Ibarra, A. Welter, M. Martinez Wassaf, V. Ré and S.V. Nates</i>	547
Molecular characterization of antibiotic resistance in <i>Escherichia coli</i> isolates from wild <i>Turdus philomelos</i> in Portugal <i>T. Santos, N. Silva, A. Gonçalves, C. Marinho, C. Araújo, M. Sousa, P. Rodrigues, T. Rodrigues, G. Igrejas and P. Poeta</i>	552
Nano in medicine: new horizons in diagnosis of meningitis <i>R. Kumar, Suman and V.K. Jain</i>	556
Natural pore forming antimicrobial peptides: test for potential toxicity <i>D.A. Aliverdieva, M.H. Efendieva and D.V. Mamaev</i>	560
Neurotoxic effects of ochratoxin A onto neural stem cells from the subventricular zone <i>in vitro</i> <i>B. Rocamonde, E.M. Mateo, M. Jiménez, J.M. Soria and M.A. García-Esparza</i>	565
OprD alterations in non-carbapenemase producing <i>Pseudomonas aeruginosa</i> strains <i>E. Alcaide, M.D. Blasco, M.J. Giménez, R. Borrás and C. Esteve</i>	571
Peritonitis related death: a retrospective study analysing causative factors in chronic peritoneal dialysis <i>D. Krishnaprasadh, Y.N.V Reddy, A. Rohit, A. Manam, A. Verma, M. Mathew, L. Revathi, A. Yuvaraj, S. Nair and G. Abraham</i>	576
Physico-chemical and biological indices of parasites distribution in Nigeria <i>E.C. Amadi and N.F. Onyemelukwe</i>	581
Restoration of susceptibility of MRSA to β -lactam antibiotics by probiotic <i>Lactobacillus plantarum</i> <i>J. Al-Attwani, P.L. Waines, R.B. Nisr and J. Beal</i>	585
Solid phase synthesis and computational study of some thiazole derivatives of potential biological interest <i>G. Kumar Gupta, V. Saini, R. Khare, V. Kumar, S. Singh and K. Kaur</i>	590
Study of some properties of new isolated <i>Lactobacillus</i> and <i>Bifidobacterium</i> strains <i>A. Tokhtakhunova, K. Khamidova, G. Zolotilina and G. Cherkasova</i>	595

Part 6 – Biotechnologically relevant enzymes and proteins

- Conformational stability to pH changes of the NH₂-terminal propeptide of human pulmonary surfactant protein B precursor 600
A. Bañares-Hidalgo, A. Palacios, A.G. Serrano, J. Pérez-Gil and P. Estrada
- Homology modelling and bioinformatics analysis of haloarchaeal α -amylases: an overview of proteins haloadaptation and stability 606
S. Khemili-Talbi, M.A. Zorgani, S. Kebbouche-Gana, A.-T. Sihem S.L. and N. Lenchi
- Ligninolytic enzymes production by *Penicillium* strains from Caatinga soil 613
L.L. Pedrozo Tavares, J.C. Vilar Júnior, A. Elesbão do Nascimento, M.H. Estebam Alves, L. Manke, C. Barbosa da Silva, E. Santos de Oliveira, M.A. Cavalcanti Luna, G.M. Campos-Takaki and P.R. Barros Filizola
- Optimization of cultural conditions for production of chitinase by bacterial soil isolate 618
Y. Stoykov, A. Krastanov and A. Pavlov
- Production of CGTase by *Bacillus licheniformis* (UCP 1021) using media containing potato peel and milk serum 625
P.P. Borba, B. Ferreira de Lima, M.A.B. Correia, M. Caetano de Sá Muniz, H. Siqueira Amorim, L.L. Pedrozo Tavares, G.M. de Campos-Takaki and C.A. Alves da Silva
- Screening of white rot fungal species for their capacity to increase enzymatic hydrolysis of hazelnut shell 630
D. Berikten, E. Zafer Hosgün, G. Arik, Y. Yilmaz, B. Bozan and M. Kivanc

Part 7 – Methods and techniques – education

- A *Bacillus subtilis* cell factory for producing scyllo-inositol, a disease-modifying therapeutic agent for Alzheimer's disease 636
K. Tanaka, S. Tajima, S. Takenaka and K. Yoshida
- Detection and discrimination of potential biological weapon bacteria by microarrays of immobilized oligonucleotides 641
P. Lorenzo Lozano, M.V. Jiménez Pérez, M. Gil García, I. Peraile Muñoz, J.C. Cabria Ramos and J.M. Franco Zorrilla
- Fast bacterial strain identification by laser induced breakdown spectroscopy and neural networks 647
S. Manzoor, S. Moncayo, F. Navarro-Villoslada, J.A. Ayala, R. Izquierdo-Hornillos, F.J. Manuel de Villena and J.O. Caceres
- Growth and antioxidant responses of *Saccharomyces cerevisiae* BY4741 exposed to titanium dioxide nanoparticles under heat-shock conditions 654
J. Capela-Pires, R. Ferreira and I. Alves-Pereira
- Inactivation and identification of *Bacillus anthracis* spores 659
M. Gil García, I. Peraile Muñoz, M.V. Jiménez Pérez, J.C. Cabria Ramos and P. Lorenzo Lozano
- Optimization of *Neisseria lactamica*'s outer membrane vesicles production in batch cultivation process 664
M.W. Garcia, B.I. Gonçalves, G.F.C.L. Salustiano, P.L. Ho and R.P.F. Schenkman

Study of differential gene expression of <i>Oenococcus oeni</i> with microarray during the adaptation in different media	670
<i>A. Costantini, K. Rantsiou, E. Vaudano, A. Greppi, L. Cocolin and E. Garcia-Moruno</i>	
Teaching biotechnology and microbiology: differences between teachers' and students' points of view	674
<i>J. Méndez Viera and J.M. Fernández Novell</i>	
Testing biodegradation of cadmium yellow in pictorial specimens using the voltammetry of micro particles	680
<i>A.S. Ortiz-Miranda, A. Doménech-Carbó, M.T. Doménech-Carbó, F.M. Valle-Algarra, F. Bolívar and I. Martín</i>	
The microbial individual-based model INDISIM-YEAST ready to be used in the free access NetLogo modelling environment	686
<i>X. Portell, A. Gras, C. Prats and M. Ginovart</i>	
Author index	693