

Publication list for 2012

- Aachmann, F.L., Larsen, K.L. and Wimmer, R. (2012).** Interactions of cyclodextrins with aromatic amino acids: a basis for protein interactions. *J. Incl. Phenom. Macrocycl. Chem.* **73**, 349–357. **B1437**
- Aachmann, F.L., Sørli, M., Skjåk-Bræk, G., Eijsink, V.G.H. and Vaaje-Kolstad, G. (2012).** NMR structure of a lytic polysaccharide monooxygenase provides insight into copper binding, protein dynamics, and substrate interactions. *PNAS* **109**, 18779-18784. **B1483**
- Aarstad, O.A., Tøndervik, A., Sletta, H. and Skjåk-Bræk, G. (2012).** Alginate sequencing: An analysis of block distribution in alginates using specific alginate degrading enzymes. *Biomacromolecules* **13**, 106–116. **B1428**
- Almaas, E., Bruheim, P., Lale, R. and Valla, S. (2012).** Dynamics and robustness of metabolic networks: A systems biology review of *Escherichia coli* metabolism. In *Systems Microbiology - Current Topics and Applications*. Edited by Robertson, B.D. and Wren, B.W. Caister Academic Press. **17-45. B1457**
- Alvarez, L.H. and Cervantes, F.J. (2012).** Assessing the impact of alumina nanoparticles in an anaerobic consortium: methanogenic and humus reducing activity. *Appl. Microbiol. Biotechnol.* **95**, 1323-1331. **B1419**
- Alvarez, L.H., Jimenez-Bermudez, L. and Cervantes, F.J. (2012).** Enhanced dechlorination of carbon tetrachloride by immobilized fulvic acids on alumina particles. *Water Air Soil Pollut* **223**, 1911-1920. **B1416**
- Andersen, T., Melvik, J.E., Gåserød, O., Alsberg, E. and Christensen, B.E. (2012).** Ionically Gelled Alginate Foams: Physical Properties Controlled by Operational and Macromolecular Parameters. *Biomacromolecules* **13**, 3703-3710. **B1485**
- Andersen, T., Strand, B.L., Formo, K., Alsberg, E. and Christensen, B.E. (2012).** Alginates as biomaterials in tissue engineering. In *Carbohydrate Chemistry - Chemical and Biological Approaches*. Edited by Rauter, A.P. and Lindhorst, T.K. The Royal Society of Chemistry. **227-258. B1426**
- Attramadal, K.J.K., Salvesen, I., Xue, R., Øie, G., Størseth, T.R., Vadstein, O. and Olsen, Y. (2012).** Recirculation as a possible microbial control strategy in the production of marine larvae. *Aquacult. Eng.* **46**, 27– 39. **B1421**
- Attramadal, K.J.K., Tøndel, B., Salvesen, I., Øie, G., Vadstein, O. and Olsen, Y. (2012).** Ceramic clay reduces the load of organic matter and bacteria in marine fish larval culture tanks. *Aquacult. Eng.* **49**, 23– 34. **B1462**

- Attramadal, K.J.K., Øie, G., Størseth, T.R., Alver, M.O., Vadstein, O. and Olsen, Y. (2012).** The effects of moderate ozonation or high intensity UV-irradiation on the microbial environment in RAS for marine larvae. *Aquaculture* **330–333**, 121–129. **B1436**
- Austarheim, I., Christensen, B.E., Hegna, I.K., Petersen, B.O., Duus, J.O., Bye, R., Michaelsen, T.E., Diallo, D., Inngjerdengen, M. and Paulsen, B.S. (2012).** Chemical and biological characterization of pectin-like polysaccharides from the bark of the Malian medicinal tree *Cola cordifolia*. *Carbohydr. Polym.* **89**, 259–268. **B1449**
- Ballance, S., Kristiansen, K.A., Skogaker, N.T., Tvedt, K.E. and Christensen, B.E. (2012).** The localisation of pectin in *Sphagnum* moss leaves and its role in preservation. *Carbohydr. Polym.* **87**, 1326–1332. **B1412**
- Berg, L., Kucharova, V., Bakke, I., Valla, S. and Brautaset, T. (2012).** Exploring the 5'-UTR DNA region as a target for optimizing recombinant gene expression from the strong and inducible *Pm* promoter in *Escherichia coli*. *Journal. Biotechnol.* **158**, 224–230. **B1391**
- Bergvik, M., Overrein, I., Bantle, M., Evjemo, J.O. and Rustad, T. (2012).** Properties of *Calanus finmarchicus* biomass during frozen storage after heat inactivation of autolytic enzymes. *Food Chemistry* **132**, 209–215. **B1431**
- Correa, E., Sletta, H., Ellis, D.I., Hoel, S., Ertesvåg, H., Ellingsen, T.E., Valla, S. and Goodacre, R. (2012).** Rapid reagentless quantification of alginate biosynthesis in *Pseudomonas fluorescens* bacteria mutants using FT-IR spectroscopy coupled to multivariate partial least squares regression. *Anal. Bioanal. Chem.* **online**. **B1458**
- Dobrovolska, O., Rychkov, G., Shumilina, E., Nerinovski, K., Schmidt, A., Shabalin, K., Yakimov, A. and Dikiy, A. (2012).** Research Article - Structural Insights into Interaction between Mammalian Methionine Sulfoxide Reductase B1 and Thioredoxin. *J. Biomed.Biotech.* **2012**, 9p. **B1443**
- Dobrovolska, O., Shumilina, E., Gladyshev, V.N. and Dikiy, A. (2012).** Structural Analysis of Glutaredoxin Domain of *Mus musculus* Thioredoxin Glutathione Reductase. *PLOS ONE* **7**, e52914. **B1499**
- Dybvik, A.I. (2012).** Functional characterization of selected chitinases and chitosanases - a pathway to generate chito-oligo-saccharides from chitosans. Thesis. *Norwegian University of Science and Technology.* **B1494**
- Dybwad, M., Granum, P.E., Bruheim, P. and Blatny, J.M. (2012).** Characterization of airborne bacteria at an underground subway station. *Appl. Env. Microbiol.* **1917–1929**. **B1439**

- Eide, K.B., Norberg, A.L., Heggset, E.B., Lindbom, A.R., Vårum, K.M., Eijsink, V.G.H. and Sørli, M. (2012).** Human chitotriosidase-catalyzed hydrolysis of chitosan. *Biochemistry* **51**, 487–495. **B1435**
- Elde, A.C., Pettersen, R., Bruheim, P., Järnegren, J. and Johnsen, G. (2012).** Pigmentation and Spectral Absorbance Signatures in Deep-Water Corals from the Trondheimsfjord, Norway. *Mar. Drugs* **10**, 1400-1411. **B1464**
- Esmurziev, A.M., Reimers, A., Andreassen, T., Simic, N., Sundby, E. and Hoff, B.H. (2012).** Benzoylated uronic acid building blocks and synthesis of N-uronate conjugates of lamotrigine. *Molecules* **17**, 820-835. **B1525**
- Fjellheim, A.J., Playfoot, K.J., Skjermo, J. and Vadstein, O. (2012).** Inter-individual variation in the dominant intestinal microbiota of reared Atlantic cod (*Gadus morhua* L.) larvae. *Aquac. Res.* **43**, 1499–1508. **B1471**
- Forberg, T. (2012).** Gnotobiotic Atlantic Cod Larvae (*Gadus morhua* L.) as a tool to study host-microbe interactions. Thesis. *Norwegian University of Science and Technology*. **B1504**
- Forberg, T., Vestrum, R.I., Arukwe, A. and Vadstein, O. (2012).** Bacterial composition and activity determines host gene-expression responses in gnotobiotic Atlantic cod (*Gadus morhua*) larvae. *Veterinary Microbiology* **157**, 420–427. **B1453**
- Fuentes-Martínez, Y., Godoy-Alcántar, C., Medrano, F. and Dikiy, A. (2012).** Kanamycin A: imine formation in aqueous solution. *Journal of Physical Organic Chemistry* **25**, 1395–1403. **B1505**
- Garaiova, Z., Strand, S.P., Reitan, N.K., Lélou, S., Størset, S.Ø., Berg, K., Malmo, J., Folasire, O., Bjørkøy, A. and Davies, C.d.L. (2012).** Cellular uptake of DNA–chitosan nanoparticles: The role of clathrin- and caveolae-mediated pathways. *International Journal of Biological Macromolecules* **51**, 1043– 1051. **B1503**
- González-Blanco, G., Beristain-Cardoso, R., Cuervo-López, F., Cervantes, F.J. and Gómez, J. (2012).** Simultaneous oxidation of ammonium and p-cresol linked to nitrite reduction by denitrifying sludge. *Bioresource Technol.* **103**, 48-55. **B1415**
- Heggset, T.M.B., Krog, A., Balzer, S., Wentzel, A., Ellingsen, T.E. and Brautaset, T. (2012).** Genome Sequence of Thermotolerant *Bacillus methanolicus*: Features and Regulation Related to Methylophony and Production of L-Lysine and L-Glutamate from Methanol. *Appl. Env. Microbiol.* **78**, 5170–5181. **B1463**

Heggset, E.B. (2012). Enzymatic degradation of chitosans – A study of the mode action of selected chitinases and chitosanases. Thesis. *Norwegian University of Science and Technology*. **B1425**

Heggset, E.B., Tuveng, T.R., Hoell, I.A., Liu, Z., Eijsink, V.G.H. and Vårum, K.M. (2012). Mode of Action of a Family 75 Chitosanase from *Streptomyces avermitilis*. *Biomacromolecules* **13**, 1733–1741. **B1465**

Hernández-Montoya, V., Alvarez, L.H., Montes-Morán, M.A. and Cervantes, F.J. (2012). Reduction of quinone and non-quinone redox functional groups in different humic acid samples by *Geobacter sulfurreducens*. *Geoderma* **183–184**, 25–31. **B1452**

Horn, S.J., Sørli, M.S., Vårum, K.M., Väljamäe, P. and Eijsink, V.G.H. (2012). Measuring Processivity. In *Methods in Enzymology*. Edited by Gilbert, H.J. Elsevier. **69-95**. **B1474**

Hultmann, L., Phu, T.M., Tobiassen, T., Aas-Hansen, Ø. and Rustad, T. (2012). Effects of pre-slaughter stress on proteolytic enzyme activities and muscle quality of farmed Atlantic cod (*Gadus morhua*). *Food Chemistry* **134**, 1399–1408. **B1454**

Janecková, H., Hron, K., Wojtowicz, P., Hlídková, E., Baresová, A., Friedecký, D., Zídková, L., Horník, P., Behúlová, D., Procházková, D., Vinohradská, H., Pesková, K., Bruheim, P., Smolka, V., St'astná, S. and Adam, T. (2012). Targeted metabolomic analysis of plasma samples for the diagnosis of inherited metabolic disorders. *Journal of Chromatography A* **1226**, 11-17. **B1430**

Kaster, K.M., Hiorth, A., Kjeilen-Eilertsen, G., Boccadoro, C., Lohne, A., Berland, H., Stavland, A. and Brakstad, O.G. (2012). Mechanisms involved in microbially enhanced oil recovery. *Transport in Porous Media* **91**, 59–79. **B1456**

Keleşoğlu, S., Volden, S., Mürşide, K. and Sjöblom, J. (2012). Adsorption of Naphthenic Acids onto Mineral Surfaces Studied by Quartz Crystal Microbalance with Dissipation Monitoring (QCM-D). *Energy Fuels* **26**, 5060–5068. **B1489**

Khong, T.T., Aachmann, F.L. and Vårum, K.M. (2012). Kinetics of de-N-acetylation of the chitin disaccharide in aqueous sodium hydroxide solution. *Carbohydrate Research* **352**, 82–87. **B1447**

Kucharova, V. (2012). Expression of recombinant proteins in *Escherichia coli*: The influence of the nucleotide sequences at the 5' ends of target genes. Thesis. *Norwegian University of Science and Technology*. **B1492**

- Lamb, J.J., Eaton-Rye, J.J. and Hohmann-Marriott, M.F. (2012).** An LED-based fluorometer for chlorophyll quantification in the laboratory and in the field. *Photosynth Res* **114**, 59–68. **B1490**
- Lee, S., Lee, S., Son, S.-W. and Holme, P. (2012).** Phase-shift inversion in oscillator systems with periodically switching couplings. *Physical Review E. Statistical, Nonlinear, and Soft Matter Physics* **85**, 027202-1-027202-4. **B1455**
- Lewin, A., Wentzel, A. and Valla, S. (2012).** Metagenomics of microbial life in extreme temperature environments. *Current Opinion in Biotechnology* **24**, in press. **B1487**
- Lien, S.K., Kvitvang, H.F.N. and Bruheim, P. (2012).** Utilization of a deuterated derivatization agent to synthesize internal standards for gas chromatography–tandem mass spectrometry quantification of silylated metabolites. *Journal of Chromatography A* **1247**, 118–124. **B1466**
- Malmo, J. (2012).** Chitosan-based nanocarriers for gene- and si RNA-delivery. Thesis. *Norwegian University of Science and Technology*. **B1475**
- Malmo, J., Sørsgård, H., Vårum, K.M. and Strand, S.P. (2012).** siRNA delivery with chitosan nanoparticles: Molecular properties favoring efficient gene silencing. *Journal of Controlled Release* **158**, 261–268. **B1440**
- Marino, S.M., Gladyshev, V.N. and Dikiy, A. (2012).** Structural characterization of mammalian selenoproteins. In *Selenium - Its Molecular Biology and Role in Human Health*. Edited by Hatfield, D.L., Berry, M.J. and Gladyshev, V.N. Springer. 125-136. **B1442**
- Martínez, C.M., Alvarez, L.H. and Cervantes, F.J. (2012).** Simultaneous biodegradation of phenol and carbon tetrachloride mediated by humic acids. *Biodegradation* **23**, 635–644. **B1438**
- Medina, I., Undeland, I., Larsson, K., Storrø, I., Rustad, T., Jacobsen, C., Kristinová, V. and Gallardo, J.M. (2012).** Activity of caffeic acid in different fish lipid matrices: A review. *Food Chemistry* **131**, 730–740. **B1410**
- Moreau, H., Verhelst, B., Couloux, A., Derelle, E., Rombauts, S., Grimsley, N., Van Bel, M., Poulain, J., Katinka, M., Hohmann-Marriott, M., Piganeau, G., Rouzé, P., Da Silva, C., Wincker, P., Van de Peer, Y. and Vandepoele, K. (2012).** Gene functionalities and genome structure in *Bathycoccus prasinos* reflect cellular specializations at the base of the green lineage. *Genome Biology* **13**, 16s. **B1526**
- Mørch, Y.A., Qi, M., Gundersen, P.O.M., Formo, K., Lacik, I., Skjåk-Bræk, G., Oberholzer, J. and Strand, B.L. (2012).** Binding and leakage of barium in

alginate microbeads. *Journal of Biomedical Materials Research. Part A* **100A**, 2939–2947. **B1480**

Mørch, Y.A., Sandvig, I., Olsen, Ø., Donati, I., Thuen, M., Skjåk-Bræk, G., Haraldseth, O. and Brekken, C. (2012). Mn-alginate gels as a novel system for controlled release of Mn²⁺ in manganese-enhanced MRI. *Contrast Media & Molecular Imaging* **7**, 265–275. **B1444**

Navid, A. and Almaas, E. (2012). Genome-level transcription data of *Yersinia pestis* analyzed with a New metabolic constraint-based approach. *BMC Systems Biology* **6**, online. **B1498**

Nguyen, H.Q., Reinertsen, H., Rustad, T., Tran, T.M. and Kjørsvik, E. (2012). Evaluation of egg quality in broodstock cobia *Rachycentron canadum* L. *Aquac. Res.* **43**, 371–385. **B1433**

Nilsen, L.H., Melø, T.M., Sæther, O., Witter, M. and Sonnewald, U. (2012). Altered neurochemical profile in the McGill-R-Thy1-APP rat model of Alzheimer's disease: a longitudinal *in vivo* ¹H MRS study. *J. Neurochem.* **123**, 532–541. **B1482**

Olsen, Y., Tokle, N.E. and Vadstein, O. (2012). Hvordan forvalte vannmassene? Om samspillet mellom næringssalt-utslipp og det planktoniske økosystemet. In *Kampen om plass på kysten*. Edited by Hersoug, B. and Johnsen, J.P. Universitetsforlaget. 199-216. **B1448**

Qi, M., Mørch, Y., Lacík, I., Formo, K., Marchese, E., Wang, Y., Danielson, K., Kinzer, K., Wang, S., Barbaro, B., Kolláriková, G., Chorvát, D.J., Hunkeler, D., Skjåk-Bræk, G., Oberholzer, J. and Strand, B.L. (2012). Survival of human islets in microbeads containing high guluronic acid alginate crosslinked with Ca²⁺ and Ba²⁺. *Xenotransplantation* **19**, 355–364. **B1495**

Qin, F. (2012). Chemical and physical characterization for bioactive, soluble (1→3) β-D-glucans (SBG) from *Saccharomyces* sp. Thesis. *Norwegian University of Science and Technology*. **B1497**

Qin, F., Aachmann, F.L. and Christensen, B.E. (2012). Chain length distribution and aggregation of branched (1→3)-β-D-glucans from *Saccharomyces cerevisiae*. *Carbohydr. Polym.* **90**, 1092–1099. **B1467**

Reitan, N.K., Sporsheim, B., Bjørkøy, A., Strand, S.P. and de Lange Davies, C. (2012). Quantitative 3-D colocalization analysis as a tool to study the intracellular trafficking and dissociation of pDNA-chitosan polyplexes. *Journal of Biomedical Optics* **17**, 12s. **B1476**

- Rustad, T. and Hayes, M. (2012).** Marine bioactive peptides and protein hydrolysates: Generation, isolation procedures, and biological and chemical characterizations - Protein and peptides from marine byproducts. In *Marine bioactive compounds - Sources, characterization and applications*. Edited by Hayes, M. Springer. **99-113. B1427**
- Shumilina, E., Solda, A., Gerashchenko, M., Gladyshev, V.N. and Dikiy, A. (2012).** ^1H , ^{13}C , and ^{15}N NMR resonance assignments of reduced full length and shortened forms of the Grx domain of *Mus musculus* TGR. *Biomol NMR Assign* **6**, 103–107. **B1441**
- Skjåk-Bræk, G. and Draget, K.I. (2012).** Alginates: Properties and Applications. In *Polymer Science: A Comprehensive Reference*. Edited by Matyjaszewski, K. and Möller, M. Elsevier B.V. **213–220. B1468**
- Sletmoen, M., Maurstad, G., Nordgård, C.T., Draget, K.I. and Stokke, B.T. (2012).** Oligoguluronate induced competitive displacement of mucin–alginate interactions: relevance for mucolytic function. *Soft Matter* **8**, 8413–8421. **B1478**
- Standal, I.B., Rainuzzo, J., Axelson, D.E., Valdersnes, S., Julshamn, K. and Aursand, M. (2012).** Classification of geographical origin by PNN analysis of fatty acid data and level of contaminants in oils from Peruvian anchovy. *J Am Oil Chem Soc* **89**, 1173-1182. **B1481**
- Stenvik, J., Sletta, H., Grimstad, Ø., Pukstad, B., Ryan, L., Aune, R., Strand, W., Tøndervik, A., Torp, S.H., Skjåk-Bræk, G. and Espevik, T. (2012).** Alginates induce differentiation and expression of CXCR7 and CXCL12/SDF-1 in human keratinocytes—The role of calcium. *J. Biomed. Mater. Res. Part A* **100**, 2803-2812 **B1450**
- Thomas, L., Hodgson, D.A., Wentzel, A., Nieselt, K., Ellingsen, T.E., Moore, J., Morrissey, E.R., Legaie, R., Consortium, T.S., Wohlleben, W., Rodriguez-García, A., Martín, J.F., Burroughs, N.J., Wellington, E.M.H. and Smith, M.C.M. (2012).** Metabolic switches and adaptations deduced from the proteomes of *Streptomyces coelicolor* wild type and *phoP* mutant grown in batch culture. *Molecular & Cellular Proteomics* **11**, 1-47. **B1446**
- Tøndervik, A., Bruheim, P., Berg, L., Ellingsen, T.E., Kotlar, H.K., Valla, S. and Throne-Holst, M. (2012).** *Ralstonia* sp. U2 naphthalene dioxygenase and *Comamonas* sp. JS765 nitrobenzene dioxygenase show differences in activity towards methylated naphthalenes. *Journal of Bioscience and Bioengineering* **113**, 173-178. **B1408**
- Vadstein, O., Andersen, T., Reinertsen, H.R. and Olsen, Y. (2012).** Carbon, nitrogen and phosphorus resource supply and utilisation for coastal planktonic

heterotrophic bacteria in a gradient of nutrient loading. *Mar. Ecol. Prog. Ser.* **447**, 55–75. **B1429**

Vadstein, O., Olsen, L.M. and Andersen, T. (2012). Prey–predator dynamics in rotifers: density-dependent consequences of spatial heterogeneity due to surface attachment. *Ecology* **93**, 1795-1801. **B1470**

Vodyanova, I.V., Storrø, I., Olsen, A. and Rustad, T. (2012). Mathematical modelling of mixing of salt in minced meat by bowl-cutter. *J. Food Eng.* **112**, 144–151. **B1460**

Vårum, K.M. (2012). Detailed characterization of chitosans, with special relevance to their use as substrates for chitinases. *Chitin and Chitosan Research* **18**, 43-46. **B1473**

Wentzel, A., Bruheim, P., Øverby, A., Jakobsen, Ø.M., Sletta, H., Omara, W.A.M., Hodgson, D.A. and Ellingsen, T.E. (2012). Optimized submerged batch fermentation strategy for systems scale studies of metabolic switching in *Streptomyces coelicolor* A3(2). *BMC Systems Biology* **6**, 1-16. **B1472**

Wentzel, A., Sletta, H., Consortium, S., Ellingsen, T.E. and Bruheim, P. (2012). Intracellular metabolite pool changes in response to nutrient depletion induced metabolic switching in *Streptomyces coelicolor*. *Metabolites* **2**, 178-194. **B1434**

Wojtowicz, P., Zrostlíková, J., Šťastná, V., Dostálová, E., Žídková, L., Bruheim, P. and Adam, T. (2012). Comprehensive Two-Dimensional Gas Chromatography Coupled to Time-of-Flight Mass Spectrometry in Human Metabolomics. In *Gas Chromatography – Biochemicals, Narcotics and Essential Oils*. Edited by Salih, B. and Çelikbıçak, Ö. InTech. 29-50. **B1461**

Xie, M., Olderøy, M.Ø., Zhang, Z., Andreassen, J.-P., Strand, B.L. and Sikorski, P. (2012). Biocomposites prepared by alkaline phosphatase mediated mineralization of alginate microbeads. *RSC Advances* **2**, 1457-1465. **B1423**

Zavareh, Z. and Almaas, E. (2012). Complex Network Analysis in Microbial Systems: Theory and Examples. In *Microbial Systems Biology - Methods in Molecular Biology*. Edited by Navid, A. Humana Press. 551-571. **B1477**

Zotchev, S.B. (2012). Marine actinomycetes as an emerging resource for the drug development pipelines. *Journal. Biotechnol.* **158**, 168–175. **B1479**

Zotchev, S.B., Sekurova, O.N. and Katz, L. (2012). Genome-based bioprospecting of microbes for new therapeutics. *Current Opinion in Biotechnology* **23**, 941-947. **B1469**

Zwick, F., Lale, R. and Valla, S. (2012). Strong stimulation of recombinant protein production in *Escherichia coli* by combining stimulatory control elements in the expression cassette. *Microbial Cell Factories* **11**, **online. B1484**