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Research

Charlotta Turner's research is about analytical chemistry for a sustainable development. Turner's research group "the Green Technology Group" investigates the fundamental properties of green solvents, eg. supercritical carbon dioxide, subcritical water and carbon dioxide-expanded liquids, for use in extraction and separation methods. Research projects often deal with the extraction and analysis of valuable substances in residual products from the food, forest, agricultural and marine industries.

Employment

Professor

Centre for Analysis and Synthesis
Lund University
Lund, Sweden
2015 Sept 21 → present

Assistant professor

Uppsala universitet, Institutionen för kemi, BMC
Sweden
2004 Jan 1 → 2009 Jan 1

Postdoc

USDA ARS Plant Gene Expression Center
Albany, United States
2001 Jan 1 → 2004 Jan 1

Research outputs

Extractability, selectivity, and comprehensiveness in supercritical fluid extraction of seaweed using ternary mixtures of carbon dioxide, ethanol, and water

Gondo, T. F., Jönsson, M., Karlsson, E. N., Sandahl, M. & Turner, C., 2023 Sept 13, In: Journal of chromatography. A. 1706, p. 464267 13 p.

Research and education in analytical chemistry — industrial and academic perspectives from a survey conducted in Sweden

Bergquist, J., Emmer, Å., Farbrot, A. & Turner, C., 2023, In: Analytical and Bioanalytical Chemistry. 415, 12, p. 2151-2161 11 p.

Desulfurization of Morupule Coal with Subcritical Aqueous Ethanol Extraction

Nermark, F. M., Mapolelo, M. M., Darkwa, J., Wendt, O. F. & Turner, C., 2022 Nov, In: ChemistryOpen. 11, 11, e202200046.

A review of green solvent extraction techniques and their use in antibiotic residue analysis

Khataei, M. M., Epi, S. B. H., Lood, R., Spégel, P., Yamini, Y. & Turner, C., 2022 Feb 5, In: Journal of Pharmaceutical and Biomedical Analysis. 209, 114487.

Simultaneous Determination of Vitamin D and Its Hydroxylated and Esterified Metabolites by Ultrahigh-Performance Supercritical Fluid Chromatography-Tandem Mass Spectrometry

Socas-Rodríguez, B., Pilařová, V., Sandahl, M., Holm, C. & Turner, C., 2022 Feb, In: Analytical Chemistry. 94, 7, p. 3065-3073 9 p.

Biogeographical variation in antimicrobial resistance in rivers is influenced by agriculture and is spread through bacteriophages

Andersson, T., Adell, A. D., Moreno-Switt, A. I., Spégel, P., Turner, C., Overballe-Petersen, S., Fuursted, K. & Lood, R., 2022, In: Environmental Microbiology. 24, 10, p. 4869-4884

Single-Standard Quantification Strategy for Lignin Dimers by Supercritical Fluid Chromatography with Charged Aerosol Detection

Papp, D., Rukkijakan, T., Lebedeva, D., Nylander, T., Sandahl, M., Samec, J. S. M. & Turner, C., 2022, (Accepted/In press) In: Analytical Chemistry.

Separation of monomeric and dimeric phenolic compounds in lignosulphonate lignin on different stationary phases using ultrahigh-performance supercritical fluid chromatography

Prothmann, J., Palmer, S., Turner, C. & Sandahl, M., 2021 Sept, In: Journal of Chromatography A. 1653, 462408.

Investigating lignin-derived monomers and oligomers in low-molecular-weight fractions separated from depolymerized black liquor retentate by membrane filtration

Li, K., Prothmann, J., Sandahl, M., Blomberg, S., Turner, C. & Hulteberg, C., 2021 May, In: Molecules. 26, 10, 2887.

Multivariate optimization of a combined static and dynamic supercritical fluid extraction method for trace analysis of pesticides pollutants in organic honey

Tolcha, T., Gemechu, T., Al-Hamimi, S., Megersa, N. & Turner, C., 2021 Apr 1, In: Journal of Separation Science. 44, 8, p. 1716-1726 11 p.

Identification of Phlorotannins in the Brown Algae, *Saccharina latissima* and *Ascophyllum nodosum* by Ultra-High-Performance Liquid Chromatography Coupled to High-Resolution Tandem Mass Spectrometry

Sardari, R. R. R., Prothmann, J., Gregersen, O., Turner, C. & Nordberg Karlsson, E., 2021 Jan, In: Molecules (Basel, Switzerland). 26, 1, 17 p., 43.

Cross-national differences in consumer responses to savoury crackers containing blackcurrant pomace

Reißner, A. M., Struck, S., Alba, K., Proserpio, C., Foschino, R., Turner, C., Hernando, I., Zahn, S. & Rohm, H., 2021, In: International Journal of Food Science and Technology. 56, 10, p. 5007-5016

Measurement of relative static permittivity and solvatochromic parameters of binary and ternary CO₂-expanded green solvents

Cui, J., Norberg, M., Andersson, M., Klintberg, L., Sandahl, M., Cunico, L. P. & Turner, C., 2021, In: Journal of Supercritical Fluids. 171, 105196.

Non-targeted analysis strategy for the identification of phenolic compounds in complex technical lignin samples

Prothmann, J., Li, K., Hulteberg, C., Spégel, P., Sandahl, M. & Turner, C., 2020 Sept 7, In: ChemSusChem. 13, 17, p. 4605-4612 8 p.

A Fast and Green Extraction Method for Berry Seed Lipid Extraction Using CO₂ Expanded Ethanol Combined with Sonication

Al-Hamimi, S. & Turner, C., 2020 Apr, In: European Journal of Lipid Science and Technology. 122, 4, 1900283.

Selective pressurized hot water extraction of nutritious macro-nutrients vs. micro-nutrients in Moringa oleifera leaves—a chemometric approach

Nuapia, Y., Al-Hamimi, S., Matshediso, P. G., Cukrowska, E., Tutu, H., Turner, C. & Chimuka, L., 2020 Apr, In: Analytical and Bioanalytical Chemistry. 412, 11, p. 2495-2503 9 p.

High density supercritical carbon dioxide for the extraction of pesticide residues in onion with multivariate response surface methodology

Tolcha, T., Gemechu, T., Al-Hamimi, S., Megersa, N. & Turner, C., 2020 Feb 24, In: Molecules. 25, 4, 1012.

Engineering the carotenoid biosynthetic pathway in Rhodothermus marinus for lycopene production

Kristjansdottir, T., Ron, E. Y. C., Molins-Delgado, D., Fridjonsson, O. H., Turner, C., Bjornsdottir, S. H., Gudmundsson, S., van Niel, E. W. J., Karlsson, E. N. & Hreggvidsson, G. O., 2020, In: Metabolic Engineering Communications. 11, e00140.

Enhanced distribution kinetics in liquid-liquid extraction by CO₂-expanded solvents

Cunico, L. P., Sun, M., Rui, Y., Ghirmai, S., Enekvist, M., Lundegard, S., Sandahl, M. & Turner, C., 2020, In: Journal of Supercritical Fluids. 163, 104874.

Recent advances in the analysis of vitamin D and its metabolites in food matrices

Socas-Rodríguez, B., Sandahl, M., Holm, C. & Turner, C., 2020, In: separations. 7, 2, 27 p., 36.

Solubility and Thermal Degradation of Quercetin in CO₂-Expanded Liquids

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Evaluation of sequential processing for the extraction of lipids, starch and proteins from wheat bran

Sardari, R., Sutiono, S., Azeem, H. A., Galbe, M., Larsson, M., Turner, C. & Nordberg Karlsson, E., 2019 Nov 28, In: Frontiers in Bioengineering and Biotechnology. 7, 413

Membrane filtration of alkali-depolymerised kraft lignin for biological conversion

Abdelaziz, O. Y., Ravi, K., Nöbel, M., Tunå, P., Turner, C. & Hulteberg, C. P., 2019 Sept 1, In: Bioresource Technology Reports. 7, 100250.

Oxidative Depolymerisation of Lignosulphonate Lignin into Low-Molecular-Weight Products with Cu-Mn/δ-Al₂O₃

Abdelaziz, O. Y., Meier, S., Prothmann, J., Turner, C., Riisager, A. & Hulteberg, C. P., 2019 Mar 5, In: Topics in Catalysis. 62, p. 639–648 10 p.

A sustainable approach for the extraction of cholesterol-lowering compounds from an olive by-product based on CO₂-expanded ethyl acetate

Vásquez-Villanueva, R., Plaza, M., García, M. C., Turner, C. & Marina, M. L., 2019, In: Analytical and Bioanalytical Chemistry. 411, 22, p. 5885-5896

Composition and physicochemical properties of dried berry pomace

Reiðner, A. M., Al-Hamimi, S., Quiles, A., Schmidt, C., Struck, S., Hernando, I., Turner, C. & Rohm, H., 2019, In: Journal of the Science of Food and Agriculture. 99, 3, p. 1284-1293

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Preparation and Analysis of Polar Hawthorn Berry Extracts, Industrial Application in Poultry Processing

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Signal enhancement in supercritical fluid chromatography-diode-array detection with multiple injection

Sun, M., Turner, C. & Sandahl, M., 2019, In: Journal of Separation Science. 42, 24, p. 3727-3737

Ultrahigh-pressure supercritical fluid extraction and chromatography of *Moringa oleifera* and *Moringa peregrina* seed lipids
Belo, Y. N., Al-Hamimi, S., Chimuka, L. & Turner, C., 2019, In: *Analytical and Bioanalytical Chemistry*. 411, 16, p. 3685-3693

Superamphiphobic coatings based on liquid-core microcapsules with engineered capsule walls and functionality
Nordenström, M., Riazanova, A. V., Järn, M., Paulraj, T., Turner, C., Ström, V., Olsson, R. T. & Svagan, A. J., 2018 Dec 1, In: *Scientific Reports*. 8, 1, 3647.

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Andersson, M., Rodriguez-Meizoso, I., Turner, C., Hjort, K. & Klintberg, L., 2018 Jun 1, In: *Journal of Supercritical Fluids*. 136, p. 95-101 7 p.

Screening of stationary phase selectivities for global lipid profiling by ultrahigh performance supercritical fluid chromatography
Al Hamimi, S., Sandahl, M., Armeni, M., Turner, C. & Spégel, P., 2018 May 4, In: *Journal of Chromatography A*. 1548, p. 76-82 7 p.

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Structure dependent antioxidant capacity of phlorotannins from Icelandic *Fucus vesiculosus* by UHPLC-DAD-ECD-QTOFMS
Hermund, D. B., Plaza, M., Turner, C., Jónsdóttir, R., Kristinsson, H. G., Jacobsen, C. & Nielsen, K. F., 2018 Feb 1, In: *Food Chemistry*. 240, p. 904-909 6 p.

Analytical chemistry for a sustainable society – trends and implications
Bergquist, J. & Turner, C., 2018, In: *Analytical and Bioanalytical Chemistry*. 410, 14, p. 3235-3237

Characterization of carotenoids in *Rhodothermus marinus*
Ron, E., Plaza, M., Kristjansdóttir, T., Sardari, R., Bjornsdóttir, S., Gudmundsson, S., Hreggvidsson, G. O., Turner, C., van Niel, E. & Nordberg Karlsson, E., 2018, In: *MicrobiologyOpen*. 7, 1, e00536.

Comprehensive on-line two-dimensional liquid chromatography × supercritical fluid chromatography with trapping column-assisted modulation for depolymerised lignin analysis
Sun, M., Sandahl, M. & Turner, C., 2018, In: *Journal of Chromatography A*. 1541, p. 21-30

Continuous multicomponent quantification during supercritical fluid extraction applied to microalgae using in-line UV/Vis absorption spectroscopy and on-line evaporative light scattering detection
Abrahamsson, V., Jumaah, F. & Turner, C., 2018, In: *Journal of Supercritical Fluids*. 131, p. 157-165 9 p.

Identification of lignin oligomers in Kraft lignin using ultra-high-performance liquid chromatography/high-resolution multiple-stage tandem mass spectrometry (UHPLC/HRMSⁿ)
Prothmann, J., Spégel, P., Sandahl, M. & Turner, C., 2018, In: *Analytical and Bioanalytical Chemistry*. 410, 29, p. 7803-7814 12 p.

Multicomponent inverse modeling of supercritical fluid extraction of carotenoids, chlorophyll A, ergosterol and lipids from microalgae
Abrahamsson, V., Cunico, L. P., Andersson, N., Nilsson, B. & Turner, C., 2018, In: *Journal of Supercritical Fluids*. 139, p. 53-61

Oxidative Depolymerisation of Lignosulphonate Lignin into Low-Molecular-Weight Products: A Catalyst Screening Study
Abdelaziz, O., Meier, S., Turner, C., Riisager, A. & Hulteberg, C., 2018.

Ultra-high-performance supercritical fluid chromatography with quadrupole-time-of-flight mass spectrometry (UHPSFC/QTOF-MS) for analysis of lignin-derived monomeric compounds in processed lignin samples
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Density Measurements of CO₂-Expanded Liquids
Cunico, L. P. & Turner, C., 2017 Oct 12, In: Journal of Chemical and Engineering Data. 62, 10, p. 3525-3533 9 p.

Rapid and Green Separation of Mono- and Diesters of Monochloropropanediols by Ultrahigh Performance Supercritical Fluid Chromatography-Mass Spectrometry Using Neat Carbon Dioxide as a Mobile Phase
Jumaah, F., Jędrkiewicz, R., Gromadzka, J., Namieśnik, J., Essén, S., Turner, C. & Sandahl, M., 2017 Sept 20, In: Journal of Agricultural and Food Chemistry. 65, 37, p. 8220-8228 9 p.

Polyphenol-rich spice-based beverages modulated postprandial early glycaemia, appetite and PYY after breakfast challenge in healthy subjects: A randomized, single blind, crossover study
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Green and Efficient Extraction Method to Determine Polyphenols in Cocoa and Cocoa Products
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Alterations in the plasma metabolite profile associated with improved hepatic function and glycemia in mice fed lingonberry supplemented high-fat diets
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Experimental measurements and modeling of curcumin solubility in CO₂-expanded ethanol
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Green Solvents Screening for the Fractionation of LignoBoost Lignin
Abdelaziz, O., Prothmann, J., Turner, C. & Hulteberg, C., 2017.

Pressurized Hot Water Extraction of Bioactives
Plaza, M. & Turner, C., 2017, In: Comprehensive Analytical Chemistry. 76, p. 53-82

Characterization of antioxidant polyphenols from Myrciaria jacobinica peel and their effects on glucose metabolism and antioxidant status: A pilot clinical study
Plaza, M., Batista, Â. G., Cazarin, C. B. B., Sandahl, M., Turner, C., Östman, E. & Maróstica Júnior, M. R., 2016 Nov 15, In: Food Chemistry. 211, p. 185-197 13 p.

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Abdelaziz, O. Y., Brink, D. P., Prothmann, J., Ravi, K., Sun, M., Garcia Hidalgo, J., Sandahl, M., Hulteberg, C. P., Turner, C., Lidén, G. & Gorwa-Grauslund, M. F., 2016 Oct 6, In: Biotechnology Advances. 34, 8, p. 1318-1346 29 p.

Ultra-high performance supercritical fluid chromatography of lignin-derived phenols from alkaline cupric oxide oxidation
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A fast and sensitive method for the separation of carotenoids using ultra-high performance supercritical fluid chromatography-mass spectrometry

Jumaah, F., Plaza, M., Abrahamsson, V., Turner, C. & Sandahl, M., 2016 Aug, In: Analytical and Bioanalytical Chemistry. 408, 21, p. 5883–5894 12 p.

Berry pomace - A review of processing and chemical analysis of its polyphenols

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Alhamimi, S., Abellan Mayoral, A., Cunico, L. & Turner, C., 2016 May 3, In: Analytical Chemistry. 88, 8, p. 4336-4345

Method development in inverse modeling applied to supercritical fluid extraction of lipids

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Lingonberries alter the gut microbiota and prevent low-grade inflammation in high-fat diet fed mice

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Pressurized liquid extraction and liquid chromatography-mass spectrometry analysis of phenolic oligomers from lignin samples

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From supercritical carbon dioxide to gas expanded liquids in extraction and chromatography of lipids

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Fast determination of intact glucosinolates in broccoli leaf by pressurized liquid extraction and ultra high performance liquid chromatography coupled to quadrupole time-of-flight mass spectrometry

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High catechins/low caffeine powder from green tea leaves by pressurized liquid extraction and supercritical antisolvent precipitation

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Substituent Effects on in Vitro Antioxidizing Properties, Stability, and Solubility in Flavonoids

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Molecular imprinted polymer for solid-phase extraction of flavonol aglycones from Moringa oleifera extracts

Pakade, V., Cukrowska, E., Lindahl, S., Turner, C. & Chimuka, L., 2013, In: Journal of Separation Science. 36, 3, p. 548-555

Sustainable analytical chemistry-more than just being green

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Towards superhydrophobic coatings made by non-fluorinated polymers sprayed from a supercritical solution

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Investigation of different particle sizes on superhydrophobic surfaces made by rapid expansion of supercritical solution with in situ laser diffraction (RESS-LD)

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Pakade, V., Lindahl, S., Chimuka, L. & Turner, C., 2012, In: *Journal of Chromatography A*. 1230, p. 15-23

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