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Professional Profile

Mike Dickinson has over 20 years' experience working in the area of food and feed chain safety, primarily as an analytical chemist providing support and solutions on the analytical techniques used to investigate problems across a number of commodities and industries including food, beverages and feed. Mike worked for Fera Science Ltd (previously The Food and Environment Research Agency (Fera) and the Central Science Laboratory (CSL)) for 18 years before taking a position at the UK's Food Standards Agency (FSA) as a Senior Risk Assessor and Team Leader in the Chemical Risk Assessment / Toxicology team for 3.5 years.

Whilst at Fera, Mike worked as an analytical chemist on a wide range of food, feed and environmental projects with academia, industry and UK government department clients. Mike has developed, validated and obtained ISO17025 accreditation for analytical methodologies primarily using Gas Chromatography and Liquid Chromatography - tandem quadrupole Mass Spectrometry for veterinary medicines and pesticides in food and feed matrices before developing a specialism in non-targeted analysis using high resolution mass spectrometry. Mike was the metabolomics mass spectrometry lead for Fera, working on large European collaborative projects, developing data analysis pipelines for interpreting and annotating metabolomic data sets.

At the FSA Mike worked in the area of risk assessment for feed and feed additives and as an analytical chemistry lead for the Science Directorate. He worked closely with the Advisory Committee on Animal Feedstuffs (ACAF) and the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT). His responsibilities were to evaluate the safety of regulated products through review of submitted dossiers and to lead a team which evaluated regulated product applications for food contact materials, food additives, flavourings and smoke flavourings, working closely with the UK Joint Expert Groups (external Scientific Advisory Committees) for these regulatory regimes.

Whilst at the FSA Mike set up the safety assessment process for the authorisation of animal trials using non-approved feed additives and led recent large research projects exploring the safety of non-approved substrates for insects (for feed) and mycotoxins in pet food. Mike has a particular interest in the safety of novel feed stuffs and feed additives, co-authoring a book chapter and a number of scientific papers on the safety implications of insect protein as potential soy or fishmeal replacement.

Mike has presented his work extensively throughout the world, being an invited speaker at conferences and workshops and recently represented the UK on an FAO panel discussing the safety of novel environmental inhibitors. Mike has acted as expert reviewer for journals such as Metabolomics, and provided expert analytical chemistry peer review for the UK's Department of Environment and Rural Affairs (Defra) and the Swedish Research Council.

Academic Credentials & Professional Honors

B.Sc., Biology, University of York, UK, 2003

Publications

Anesti O, Papaioannou N, Gabriel C, Karakoltzidis A, Dzhedzheia V, Petridis I, Stratidakis A, Dickinson M, Horvat M, Tratnik JS, Tsatsakis A, Karakitsios S and Sarigiannis DA (2023) An exposome connectivity paradigm for the mechanistic assessment of the effects of prenatal and early life exposure to metals on neurodevelopment. Frontiers in Public Health, 9:10:871218. doi: 10.3389/fpubh.2022.871218

Nightingale J, Carter L, Sinclair CJ, Rooney P, Dickinson M, Tarbin J and Kay P(2022) Assessing the influence of pig slurry pH on the degradation of selected antibiotic compounds. Chemosphere, 290:133191. doi.org/10.1016/j.chemosphere.2021.133191

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Rusilowivz M, Dickinson M, Charlton AJ, O'Keefe S, and Wilson J (2018) MetaboClust: Using interactive time-series cluster analysis to relate metabolomic data with perturbed pathways. Plos One, 13(10): e0205968. doi.org/10.1371/journal.pone.0205968

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Hall H, Masey O'Neill H, Scholey D, Burton E, Dickinson M and Fitches E (2018) Amino acid digestibility of larval meal (Musca domestica) for broiler chickens. Poultry Science, 97(4). doi.org/10.3382/ps/pex433

Bianco C, Defez R, Andreozzi A, Dickinson M, Charlton AJ, Tadini L. and Pesaresi P (2017) Improved drought stress response in alfalfa plants nodulated by an IAA over-producing rhizobium strain. Frontiers in Microbiology, 8. doi.org/10.3389/fmicb.2017.02466

Hoysted GA, Lilley C, Field K, Dickinson M, Hartley SE and Urwin PE (2017) A plant-feeding nematode indirectly increases the fitness of an aphid. Frontiers in Plant Science, 8. doi.org/10.3389/fpls.2017.01897

Lara FJ, Chan D, Dickinson M, Lloyd AS, and Adams SJ (2017) Evaluation of direct analysis in real time for the determination of highly polar pesticides in lettuce and celery using modified quick polar pesticides extraction method. Journal of Chromatography A, 1496:37-44. doi.org/10.1016/j.chroma.2017.03.020

Rusilowivz M, Dickinson M, Charlton AJ, O'Keefe S, and Wilson J (2015) Batch correction of liquid chromatography – mass spectrometry data without quality control samples. Metabolomics, 12:3. doi.org/10.1007/s11306-016-0972-2

Fernandes A, Holland J, Dickinson M and Rose MD (2014) Insects as a source of protein for animal feed

and human nutrition: potential for exposure to dioxins? Dioxin 2014, Madrid, Spain. Vol: Organohalogen compounds, 76:581-583

Charlton AJ, Dickinson M, Wakefield M, Fitches E, Kenis M, Han R, Zhu F, Koné N, Grant M, Devich E, Bruggeman G, Prior R and Smith R (2014) Exploring the chemical safety of fly larvae as a source of protein for animal feed. Journal of Insects as Food and Feed, 1(1). doi.org/10.3920/JIFF2014.0020

Dickinson M, Parker M, Schoutsen F and Charlton AJ (2014) A rapid method for the detection of free alpha-amino acids in pea (Pisum sativum) using Ultra High Performance Liquid Chromatography – High Resolution Accurate Mass - Mass Spectrometry. Analytical Methods, 6(7). doi.org/10.1039/C3AY42278J

Grundy HH, Read WA, Dickinson M, Charlton AJ, Dusek M, Breidbach A, Scholl PF, Newsome GA, Bell D and Alewijn M (2013) Selected reaction monitoring method to determine the species origin of blood-based binding agents in meats: a collaborative study. Food chem, 141(4). doi.org/ 10.1016/j.foodchem.2013.06.063

Fussell RJ, Heinrich K, Dickinson M, Wilkins S, Roelofs V, Murray A, Kay JF and Sharman M (2012) Investigation into the experimental protocols required to determine maximum residue limits (MRLs) in honey. Drug Test Anal. 4(1). doi.org/10.1002/dta.1360

Roberts DPT, Scotter MJ, Godula M, Dickinson M and Charlton AJ (2011) Development and validation of a rapid method for the determination of natamycin in wine by high-performance liquid chromatography coupled to high resolution mass spectrometry. Analytical Methods, 3(4). 937-943 doi.org/10.1039/C0AY00330A

Adams SJ, Fussell RJ, Dickinson M, Wilkins S and Sharman M (2009) Study of the depletion of lincomycin residues in honey extracted from treated honeybee (Apis mellifera L.) colonies and the effect of the shook swarm procedure. Analytica Chimica Acta, 637(1-2). doi.org/ 10.1016/j.aca.2008.09.013

Book Chapters

Wakefield M, Mason S and Dickinson M (2021). Chapter 3: Insect products, processing and safety, Insects as animal feed: novel ingredients for use in pet, aquaculture and livestock diets, CABI. doi.org/10.1079/9781789245929.0003

Application Notes and Grey Literature

Dickinson M (2015). Marching Forward with Food Analysis. The Analytical Scientist Issue 0915, September 2015.

Dickinson M (2014). Metabolomics data analysis of herbicide susceptible and resistant populations of black-grass (Alopecurus myosuroides). Technical application note for Progenesis QI, (NonLinear Dynamics, Waters Corporation)

Presentations

“Food safety implications from the use of environmental inhibitors in agrifood systems”, Webinar 16 April 2024, Food and Agriculture Organization of the United Nations

“Legality and Risks of Black Soldier Fly feedstocks”, Panel Session 1, Black Soldier Fly CON, St John’s College, Cambridge. 11-12 September 2023

“Can X.fastidiosa infections be detected based on emission of volatiles by plants?” Brigit Consortium Meeting, SASA, Edinburgh, Scotland. 12 July 2019

“Why is QC important to me? A discussion of the potential pitfalls when employing non-targeted analyses

for food authenticity." Standardisation of non-targeted methods for food authentication workshop, BfR, Berlin, Germany. 28 – 29 November 2016

"Discovering the metabolic and biological pathway changes of legumes exposed to combined biotic and abiotic stress over time." Second International Legume Society Conference, Troia, Portugal. 11-14 October 2016

"Safety and Quality Issues associated with Insects as Human Food and Animal Feed." BAFSAM Feed Conference 2016, National Conference Centre, Solihull, UK. 28 April 2016

"Plant Metabolomics" Scientific workshop on the effects of biotic and abiotic stresses in legumes, Unidad Integrada Balcarce, Buenos Aires, Argentina. 11 March 2016

"Exposing the exposome: Metabolomics and environmental toxicology." 3rd EMSSIG British Society Mass Spectrometry meeting, BAT, Southampton. 18 October 2015

"Using High Resolution Mass Spectrometry (HRMS) approaches to fight food fraud: Don't get stung by your Manuka Honey!" Waters Screening User Meeting 2015: Advanced Technologies for Routinely Screening Food and Environmental Samples, Wilmslow, UK. 7-8 October 2015

"IC-MS Multi-residue pesticide methods, fantasy or reality?" 1st International Symposium on Recent Developments in Pesticide Analysis, Prague, Czech Republic. 27-28 April 2015

"Pesticides in Water: The Analytical Challenge" Pesticides in Water Aqua Enviro and SCI event, Fera, York, UK 1 December 2011