

CURRICULUM VITAE

Name Ankit Patras
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EDUCATION

2005- 2009: **Ph.D. Biosystems Engineering:** School of Biosystems Engineering, College of Engineering & Architecture, Institute of Food and Health, University College Dublin, Ireland.

2005- 2006: **Post-graduate certificate (Statistics & Computing):** Department of Statistics and Actuarial Science, School of Mathematical Sciences, University College Dublin, Ireland

2003- 2004: **Master of Science (Bioprocess Technology):** UCD School of Biosystems Engineering, College of Engineering & Architecture, University College Dublin, Ireland

1998- 2002: **Bachelor of Technology (Agricultural and Food Engineering):** Allahabad Agriculture Institute, India

ACADEMIC POSITIONS

Assistant Professor, Food Biosciences: Department of Agricultural and Environmental Research, College of Agriculture, Human and Natural Sciences, Tennessee State University, Nashville, Tennessee

2nd Jan, 2014 - Present

- Leading a team of scientist and graduate students in developing a world-class food research centre addressing current issues in human health, food safety specially virus, bacterial and mycotoxins contamination
- Developing a world-class research program on improving safety of foods and pharmaceuticals
- Develop cutting edge technologies (i.e. optical technologies, bioplasma, power Ultrasound, photosensitizers formulations) for food and pharmaceutical applications
- Bioassay testing and reactor validation for pathogenic microbes, viruses and toxins
- Develop accurate dose delivery (Irradiation) techniques for microbe and toxins removal from foods
- Method development [mycotoxins, vitamins, polyphenols, glucosinolates, carotenoids, amino acids, sugars]
- Scale up of technologies from bench to pilot

FUNDING SUCESSS

Principal Investigator

Title of Project: Developing novel mitigation strategies for Aflatoxin detoxification in foods
Project number: 1003416
Federal agency: National Institute Of Food And Agriculture, USDA
Project term: 2014-2017
Funding amount: \$21,000

Title of Project: Steering Innovation for Treatment of Liquid Foods to Eliminate Pathogenic Microbes and Toxins using Low Wave-length UV Irradiation

Award number: 2015-69003-23117

CRIS number: 1005352

Federal agency: National Institute Of Food And Agriculture, USDA

Project term: 2015-2018

Funding amount: \$500,000

Co-Principal Investigator

Title: Sustainable utilization of winter oilseed crops in small-farm production systems to meet the needs of biodiesel

Award number: 2014-38821-22428

Funding amount: \$296,441

Project term: 09/01/2014 - 08/31/2017

Funding Amount: \$298,500

Co-Principal Investigator

Title: To Improve Research Facilities at 1890 Historically Black Land-Grant Colleges and Universities Tennessee State University Nashville, Tennessee.,

Funding amount: \$1,089,527

INDUSTRIAL & RESEARCH POSITIONS

Industrial Postdoctoral Fellow: Trojan Technologies (Advanced Technology Research Group) - Canada, Food Science Department, University of Guelph, Canada.

Sept, 2010 - Present

- Developing a leading edge green technology for Ultra-Violet disinfection of highly opaque fluids [Food & Pharmaceutical Application] using low-pressure lamp and LED technology. Viruses of interest: Mycoplasma, Adenovirus, Parvovirus [Murine minute virus, Human Parvovirus, Hepatitis A etc.
- Developed chemical actinometers [Riboflavin, Pyruvate] for accurate estimation of UV dose delivery in a UV reactor for food applications.
- Application of 1D-1H NMR spectroscopy and HPLC to detect and characterize various secondary (Amino acids- leucine, Tyrosine, Tryptophan, Proline; Vitamins- Riboflavin, etc) metabolites and by-products in UV-irradiated fluids. 600 MHz Bruker Avance spectrometer operating at 600.13 MHz, equipped with a Triple Resonance Probe (TXI 600) was used and compounds were quantified by targeted profiling; using Chenomx's built-in library of spectral peaks.
- Investigated metabonomic and metabolomic differences in cell culture media after UV irradiations and correlate the differences with the ability to culture cells in serum free media.
- Developed and validated methods for quantification of optical attenuation coefficients of opaque fluids [cell culture media-growth and production, liquid foods] using novel computational techniques.
- Quantification of scattering anisotropy for highly opaque fluids using a collimated beam. To assess if photon scattering is forward, backward or isotropic.

- Developed models to predict the performance of UV systems with low-UVT and scattering media.
- Developed robust bio-assay techniques for validation of optical properties in batch reactor and a thin film annular reactor [pre-production type] using computational fluid dynamics (2-D simulation using Fluent).
- UV Dose response curves were built for a range of bacteria and viruses for validation work using collimated beam. UV sensitivity (D_{10}) was quantified for accurate dose delivery in a UV reactor.
- Conducting and handling UV disinfection test on a pilot scale for viral infection using thin film/spiral reactors.
- Closely worked with business development team to sell UV technology and next generation reactors [tighter dose distribution] to food and pharmaceutical markets around the North America.
- Managed timelines and developed action plans for three individual projects to track the progress.
- UV Technology for opaque fluid disinfection will expand Trojan's ability to provide more holistic and sustainable integrated solutions for liquid pasteurization and greater phytochemical retention. Trojan Technologies has identified a need to expand its commercial offerings in order to provide more integrated processes with tighter design and control for the purpose of reduced energy demand.
- This position required me to lecture one course in Food Science and supervise two M.Sc. students.

Postdoctoral Fellow: Department of Food Science/Biosystems Engineering Department, University College Dublin, Ireland

Feb, 2010 – Aug, 2010

- Application of novel non-thermal process technologies (pulsed electric field [PEF], power ultrasound [US] & ozone processing) for improving safety & quality of food products.
- Use of HPLC, GC, NMR, CT scan to monitor quality of food material as processed by PEF/US.
- Mathematical modeling (RSM, kinetics, multivariate analysis, etc.) was employed for optimization and validation of process technologies.
- Mass transfer models were also built and tested for various solid foods. Supervision of 2 Ph.D. and 1 M.Sc. students.

Postdoctoral Fellow: Department of Food Bio-sciences, Teagasc, Ireland

Nov, 2008 – Feb, 2010

- In this project, my main job responsibilities were testing the glyceamic index/glyceamic response of cereal-based products.
- Developed *in-vitro* stomach simulated gastro-intestinal methods and quantification of sugars by RP-HPLC using refractive detection.
- Replacing wheat flour with freeze-dried apple pomace/BSG to assess the nutraceutical composition and GI of cereal based products.

- In addition RP-HPLC methods were also developed to quantify bound poly-phenols in cereals.
- The main aim was to assess if industrial waste could be incorporated in food products and functionality of cereal-based products could be enhanced.

Other positions

Special Graduate Faculty: Department of Food Sciences, University of Guelph, Canada
Sept, 2011 – present

Teaching Responsibilities

Assistant Professor: Department of Agricultural Sciences, Tennessee State University
Sept, 2015 – present

- Principles of Food Engineering and Processing (3690)
- Advanced Food Engineering and Bioprocessing (5000 level course)

Postdoctoral Fellow: Department of Food Science, University of Guelph
Sept, 2010 – present

- Course on Bio-fuels (Industrial Microbiology-3260)
- Conducted knowledge transfer sessions on UV technology

Teaching assistant: Department of Biosystems Engg, University College Dublin/ Teagasc AFRC
April, 2004 – July, 2008

- Course on Bioprocess Engineering Principles Module (BSEN30010)
- Co-supervised 5 foreign students in their research projects at AFRC

RESEARCH PROJECTS INVOLVED (2005- 2012)

- Scattering of ultraviolet radiation by concentrated suspensions.
- Assessment of UV irradiated cell culture media by Nuclear magnetic resonance (NMR-600 MHz) spectroscopy.
- Approach validation of biopharmaceutical applications using UV technologies
- Program to advance the treatment of opaque fluids using ultraviolet technologies for disinfection
- Technology and process optimization to minimize losses of polyacetylenes (falcarinol, falcarindiol, falcarindiol-3-acetate) in carrots
- Antioxidant status in minimally and fully processed fruits, vegetables and their products: technology optimisation to minimise losses
- Product reformulation and in vitro testing of low glycaemic breads
- Application of ultrasound assisted /pressurized liquid extraction of antioxidant polyphenols from spices & herbs
- Application of ozone processing on phytochemical composition of fluid foods

- Effect of ultrasound processing on polyphenolic antioxidant compounds in liquid foods
- Improving safety and quality of meat products using pulsed electric fields and power ultrasound
- Designing a chemical actinometre for calculation of UV dosage for disinfection of food borne pathogens/mycotoxins (patulin)
- Application of delactosed whey permeate on phytochemical composition and in-vitro antioxidant activity of plant based foods
- Identification, characterization and quantification of antioxidant compounds in plant foods: assessment of their bioactivity
- Design and fabrication of a non thermal plasma treatment system for improved food manufacturing; antimicrobial efficacy and phytochemical retention

Industrial Experience:

2005 – 2011

- Trojan Technologies (Canada) – Validated and tested thin film reactors for opaque fluid disinfection. Testing was carried out at customer site. Assisted in manufacturing a reactor skid [16 thin film reactors in series].
- Malone food products Ltd. (Ireland) – Designed a sterilization process based on F0 values.
- Moorepark research centre (Ireland) - Assisted the researchers from moorepark to process dairy products (pasteurization) in Teagasc facility (Irish agriculture and food development authority)
- Whirlpool (US) - Determination of lethality rates for meat and vegetables products using sous-vide technology on behalf of industry
- Carbery Food LtD (Ireland) - Assisted in process and product development. Formerly known as Carbery Milk Products, a leading producer of food ingredients, flavours, cheeses and alcohol
- Kellogg's (Ireland) - Quantified, identified and characterized bound and free polyphenols in different Kellogg's products by reverse phase high performance liquid chromatography

AWARDS AND HONOURS

- Outstanding Young Research Scientist award, College of Agriculture, Human and Natural Sciences (2014-2015)
- Received a Post-doctoral fellowship under MITACS Scheme (University of Guelph) (2010-2013)
- Received a Walsh fellowship of 21,000 Euro for PhD studies from The Irish Agriculture and Food Development authority (Teagasc) for three years (2005- 2008)
- Awarded a certificate and cheque of 100 Euros for presenting the best scientific paper at research seminar, School of Agriculture, Food Science & Veterinary Medicine. Category (Non- European Speaker), University College Dublin (2007)
- First runner up in annual research seminar, School of agriculture, food science& veterinary medicine, 14.03.08.Category (Senior PhD), University College Dublin (2007)
- Session Chair, Session 16a (12 October 2007), 2nd International symposium on human health effects of fruits and vegetables , Texas, United States of America , 9-13 October 2007.

- Best student award for the year 2002 in Academics and Sports at Allahabad Agricultural Institute-Deemed University (2002).

RESEARCH & TEACHING INTEREST

- Developing light based technologies for food and pharmaceutical application
- Technology Validation and Reactor Optimization
- Bioassay and optical modelling
- Food Physics
- By-product utilization and extractions
- Impact of food and its components on health and wellness
- Process modeling (MATLAB, optical modeling)
- Health promoting properties of polyphenols, glucosinolates, polyacetylenes, carotenoids

REVIEWER ACTIVITIES

- Reviewer for the Journal of the Science of Food and Agriculture, (Wiley)
- Reviewer for Journal of Food and Bioprocess Technology, (Springer)
- Reviewer for LWT - Food Science and Technology, (Elsevier)
- Reviewer for Journal of Agricultural and Food Chemistry, (ACS)
- Reviewer for Journal of Food and Biochemistry, (Wiley)
- Reviewer for Food Research international, (Elsevier)
- Reviewer for Journal of Food composition and analysis, (Elsevier)
- Reviewer for the Journal, Innovative Food Science and Emerging Technologies (Elsevier)

COMPUTER SKILLS

Operating systems:	NT, Windows XP, UNIX, Vista, Windows7
Office applications:	Microsoft PowerPoint, Access, Excel, Word
Citation softwares:	Endnote
Scientific/Statistical:	SAS, Visual Stat, Excel Stat, Minitab, Unscrambler, (Principle component regression analysis), Minitab, Genstat, Matlab, Inverse adding doubling technique

LABORATORY EXPERIENCE

High performance liquid chromatography (Analytical, Preparatory).

- Shimadzu (SPD- M10AVP) for analysis of ascorbic acid, dehydroascorbic acid, pelargonidin-3-glucoside, cyanidin-3-glucoside, Delphinidin 3, 5- O- glucoside in fruit and vegetable samples. [Method set-up, validation, maintenance and troubleshooting].
- Aglient (1100 series) - Analysis of faltarinol.
- Varian- Analysis of anthocyanins, hydroxybenzoic acid, hydroxycinnamic acid, caffeic acid, ferulic acid, ellagic acid etc. capillary electrophoresis, Prep HPLC (Agilent) system with fraction collector

- Waters - Analysis of sugars (glucose, maltose etc)

Gas Chromatography and Mass spectrometry

- GC- (Varian star 3400 CX) for analysis of different fatty acids. Identification of peaks, fragment patterns and library matching. Knowledge of different ionization sources [Electrospray ionization, Matrix assisted laser desorption ionization. Mass analysers such as quadrupoles, ion traps, time of flight, Orbitrap detectors etc.

Bio assays

- Antioxidant activity by 2, 2-Diphenyl-1-picrylhydrazyl (DPPH), FRAP, ORAC assay. Anti-inflammatory activity etc
- Microbial isolation techniques (such as culture media, plating etc.)
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Other Analytical Instruments/Methods/pilot scale machines

- Ultra- high pressure processing machine (Pressure engineered systems, max working pressure of 7000 bar), Power Ultrasound, Pulsed electric field, UV, Ozone, thermal processing for sterilization purposes, computer aided vacuum cooling system, Barriquand retort.
- Shimadzu UV Visible spectrophotometer for colorimetric analysis (phenols, carotenoids, chlorophyll a, chlorophyll b, integrating sphere
- Integrating sphere for quantification of optical properties of highly opaque fluids, collimated beam (bench scale reactor), thin film, impinging jet (pilot scale reactors)
- Dionex accelerated high pressure solvent extractor for extracting compounds of interest (pressurized liquid extraction).
- Freeze drier for drying of different fruits and vegetables for analysis of bioactive compounds.
- Proximate analysis- Calcium, sodium, magnesium, zinc, iron, protein, fat etc.

RESEARCH PRODUCTIVITY INDEX

Total Number of Citations: ≈2450

H-Index: 23

PUBLICATIONS

Patents

1. **Ankit Patras**, Mark Kustermans, Michael Sasges, Trissa Pontes. (2015). Method and System for Determining Ultraviolet Fluence Received by a Fluid. Publication number, US Patent 9,658,102

Book Chapters

2. Rawson, A., **Patras. A.** (2017). 'Handbook of Electroporation' Recovery of Secondary Plant Metabolites by Pulsed Electric Field Treatment., eds Damijan Miklavčič. Springer International Publishing AG 2017, ISBN:978-3-319-26779-1

3. **Patras, A.**, Gallagher, E., Oomah, B. D (2011) 'By-product utilization' In: B.K Tiwari, B Mckenna, A Gowen (eds). Pulse Foods: Quality, Technology, and Nutraceutical Application (Elsevier), Oxford: Academic Press; 2011, page. 325-362, ISBN-13: 978-0-12-382018-1
4. Oomah, B. D **Patras, A.**, Rawson, A., Singh, N. P (2011) 'Chemical aspects of pulses' In: B Mckenna, B.K Tiwari, A Gowen (eds). Pulse Foods: Quality, Technology, and Nutraceutical Application (Elsevier), Oxford: Academic Press; 2011, page. 9-55, ISBN-13: 978-0-12-382018-1
5. **Patras, A.**, Yuan, Y. V., Soares Costa, H. S., Sanches-Silva, A (2011) 'Antioxidant activity of phytochemicals' In: N. Brunton, B.K Tiwari, C. Brennan (eds). "HANDBOOK OF PHYTOCHEMICALS: SOURCES, STABILITY AND EXTRACTION (Wiley), ISBN: 9781444338102
6. Rawson, A., **Patras, A.**, Oomah, D.B., Campos-Vega, R., Hossain, B.M. (2011). 'Antioxidant activity of phytochemicals and their method of analysis '. In: S Thomas, L. B Iturriaga, P.B Ribotta (Eds). Advances in Food Science and Nutrition- Volume- 2, Wiley, ISBN 978-1-118-13709-3

Peer Reviewed Journals

2017

7. **Patras A.**, Sasges, M. Letter to the editor 'UV Dose Calculations'. Food Control, FOODCONT-D-17-01725 (submitted)
8. Yannam, S., **Patras A.**, Sasges, M. (2017). UV-C irradiation for the inactivation of spoilage enzymes and its effect on physicochemical properties of coconut water. Journal of the Science of Food and Agriculture, JSFA-17-0224
9. Gopisetty, V., **Patras A.**, Yannam, S., Kilonzo-Nthenge, A., Bansode, R. R., Vergne, M.J. (2017). Effect of UV-C irradiation on the quality, safety and cytotoxicity of cranberry flavored water using a novel continuous flow UV system. Innovative Food Science & Emerging Technologies, IFSET_2017_849 (Submitted)
10. **Patras, A.**, Chandra, S., Bansode, R. R., Vergne, M.J. (2017). Effect of UV irradiation on aflatoxins reduction: a cytotoxicity evaluation study using Human Hepatomacell line. Mycotoxins Research, DOI: 10.1007/s12550-017-0291-0
11. Vergne, M.J., **Patras, A.**, Singh, M., Pokharel, B., Shade, L., Xiao, H. & Sasges, M. (2017). UV-C irradiation on the quality of green tea: effect on catechins, antioxidant activity, and cytotoxicity. Journal of the Science of Food and Agriculture (under review) JSFA-17-0413
12. Chandra, S., **Patras, A.**, Pokharel, B., Bansode, R. R., Begum, A., Sasges, M. (2017). Patulin degradation and cytotoxicity evaluation of UV irradiated apple juice using human peripheral mononuclear cells. Journal of Food Process Engineering. DOI: 10.1111/jfpe.12586
13. **Patras A.** (2017). Optical properties of fluids and UV sensitivity of target micro-organisms. Journal of Food Engineering, 192, 129
14. Ward, D., **Patras A.**, Pokharel, B., Sasges, M. (2017). Efficacy of Ultraviolet (UV-C) Light in Reducing Foodborne Pathogens and Model Viruses in Milk. Journal of Food Processing and Preservation. DOI: 10.1111/jfpe.12586

2016

15. Islam, M.S., **Patras, A.**, Pokharel, B., Vergne, M.J., Shade, L., Xiao, H. & Sasges, M. (2016). Effect of UV irradiation on nutritional quality and cytotoxicity of apple juice. *Journal of Agricultural and Food Chemistry* 64 (41), 7812-7822
16. Singh, Bhullar., **Patras, A.**, Agnes Kilonzo-Nthenge., Pokharel, B., Sasges, M. (2016). UV-C inactivation of bacteria and model viruses in naturally opaque coconut water: A kinetic study. *Innovative Food Science and Emerging Technologies* (Submitted, Food Biosciences)
17. Islam, M.S., **Patras, A.**, Pokharel, B., Wu, Y., Vergne, M.J., Shade, L., Xiao, H. & Sasges, M. (2016). UV-C irradiation as an alternative disinfection technique: Study of its effect on polyphenols and antioxidant activity of apple juice. *Innovative Food Science & Emerging Technologies* 34, 344-351

2015

18. Zinoviadou, G.K., Galanakis, M. C., Brnčić, M., Grimi, N., Boussetta, N, Mota, J.M., Saraiva, J., **Patras, A.**, Tiwari, B and Barba, J.F. (2015). Application of ultrasound for fluid food processing: Implications on food safety, physicochemical and nutritional properties of liquid foods. *Food Research International* 77, 743-752
19. Roselló-Soto, E., Parniakov, O., Deng, Q., **Patras, A.**, Lebovka, N., Bals, O., Grimi, N., Boussetta, N., Vorobiev, E., Tiwari, B.K., Barba, J.K. (2015). Towards a sustainable and green production of valuable compounds from mushrooms to be used as food additives and/or nutraceuticals. *Food Engineering Reviews* 8 (2), 214-234

2014

20. **Patras, A.**, Koutchma, T. (2014). UV Irradiation Dose Corrections. *Food and Bioprocess Technology Journal. Food Bioprocess Technology*, DOI 10.1007/s11947-014-1263-4
21. Yen, S., Sokolenko, S., Manocha, B., **Patras, A.**, Daynouri-Pancino, F., Blondeel, E.J.M, Sasges, M., Aucoin, M.G (2014). Treating Cell Culture Media with UV Irradiation against Adventitious Agents, *Biotechnology Progress*, 30(5), 1190-1195

2013

22. Kuan, Y-H., Bhat, R., **Patras, A.**, Karim, A. A. (2013). Radiation Processing of Food Proteins – A Review on the Recent Developments. *Trends in Food Science & Technology*, 30(2), 105–120
23. Alvarez-Jubete L, Valverde J, **Patras A**, and Mullen A. M, Marcos B. (2013). Assessing the impact of high pressure processing on selected physical and biochemical attributes of white cabbage (*Brassica oleracea* L. var. capitata alba"). *Food and Bioprocess Technology*, 7(3), 682-692

2012

24. Keenan, D.F., **Patras, A** Brunton, N.P., Gormley, T.R., Butler, F., Tiwari, B.K. Effect of ultrasound processing on the bioactive content, quality and rheological characteristics of fruit smoothies. *International Journal of Food Science and Technology* 2012, 47, 827–836
25. Hossain, M B., **Patras, A.**, Tiwari, B.K., Brunton, O'Donnell, C.P. (2012). Optimisation of ultrasound assisted extraction of antioxidant polyphenols from Marjoram (*Origanum majorana* L.) using response surface methodology. *Ultrasonics Sonochemistry*, 19, 582–590
26. Ahmed, L., **Patras, A.**, Martin-Diana, A.B., Rico, D., & Barry-Ryan, C. (2012). Effect of delactosed whey permeates on phytochemical content of processed tomatoes during storage. *Food Chemistry* 134, 2249–2256

2011

27. **Patras, A.**, Tiwari, B.K., Brunton, N.P. (2011). Influence of blanching and low temperature preservation strategies on antioxidant activity and phytochemical content of carrots, green beans and broccoli, *LWT - Food Science and Technology*, 44, 299-306
28. **Patras, A.**, Brunton N. P., Gernigon, G., & Downey, G. (2011). Application of principal component and hierarchical cluster analysis to classify fruits and vegetables commonly consumed in Ireland based on in vitro antioxidant activity. *Journal of Food Composition and Analysis*, 24, 250–256
29. **Patras, A.**, Brunton N.P, Tiwari, B. K., Butler, F. (2011). Stability and degradation kinetics of bioactive compounds and colour in strawberry jam during storage. *Food and Bioprocess Technology*, 4(7), 1245-1252
30. Torres, B., Tiwari, B.K., **Patras, A.**, Wijngaard, H.H., Brunton, N., Cullen, P.J., O'Donnell, C.P. (2011). Effect of ozone processing on the colour, rheological properties and phenolic content of apple juice. *Food Chemistry* 124 721–726
31. Hossain, M B., **Patras, A.**, Brunton, N. P., Martin-Diana, A. B., Barry-Ryan C. (2011). Application of principal component and hierarchical cluster analysis to classify different spices based on in-vitro antioxidant activity and individual polyphenolic antioxidant compounds. *Journal of Functional Foods*, 3, 179–189
32. Tiwari, B.K., **Patras, A.**, Torres, B Brunton, N., Cullen, P.J., O'Donnell, C.P. (2011). Stability of anthocyanins and ascorbic acid of high pressure processed blood orange juice during storage. *Innovative Food Science and Emerging Technologies* 12 (2011) 93–97
33. Rawson, A., **Patras, A.**, Tiwari, B. K., Noci, F., Brunton, N. & Koutchma, T., Effect of thermal and non thermal processing technologies on the bioactive content of exotic fruits and their products: Review of recent advances, *Food Research International* 44 (2011) 1875–1887.
34. Rawson, A., Hossain, M.B., **Patras, A.**, Tuohy, M. & Brunton, N. (2013) Effect of boiling and roasting on the polyacetylene and polyphenol content of Fennel (*Foeniculum vulgare*) bulb, *Food Research International* 50 (2013) 513–518

2010

35. Rawson, A., Brunton, N., **Patras A.**, Tuohy, M. (2010). Modelling the effect of thermal processing on polyacetylene levels in carrot disks. *Food Chemistry*, 121, 62–68
36. **Patras, A.**, Brunton, N. P., Tiwari, B. K., O'Donnell, C.P. (2010). Effect of thermal processing on anthocyanin stability in foods; mechanisms and kinetics of degradation. *Trends in Food Science & Technology*, 21, 3-11
37. Keenan, D.F., Brunton, N.P., Gormley, T.R., Butler, F., Tiwari, B.K. & **Patras, A.**, Effect of thermal and high hydrostatic pressure processing on antioxidant activity and colour of fruit smoothies, *Innovative Food Science and Emerging Technologies*, 11, 551–556
38. Rawson, A., Tiwari, B.K., **Patras, A.**, Brunton, N., Brennan, C., Cullen, P.J. & O'Donnell, C., Effect of thermosonication on bioactive compounds in water-melon juice, *Food Research International Food Research International* 44 (2011) 1168–1173

2009

39. **Patras, A.**, Brunton N. P., Butler, F., Downey, G. (2009). Effect of thermal and high pressure processing on antioxidant activity of tomato and carrot purees. *Innovative Food Science and Emerging Technologies*, 10(1), 16-22
40. Tiwari, B.K., O'Donnell, C.P., **Patras, A.**, Brunton, N., Cullen, P.J. (2009). Anthocyanins and color degradation in ozonated grape juice, *Food and Chemical Toxicology*, 47, 2824–2829
41. **Patras, A.**, Brunton N. P., Gormely T, R and Butler. (2009). Impact of high pressure processing on antioxidant activity, phenolic, ascorbic acid and anthocyanins of blackberry and strawberry puree. *Innovative Food Science and Emerging Technologies*, 10(3), 308-313
42. **Patras, A.**, Brunton N. P., Tiwari, B. K & Butler, F. (2009). Modelling the effect of different sterilization treatments on antioxidant activity and colour of carrot slices during storage. *Food Chemistry*, 114, (2), 484-491
43. **Patras, A.**, Brunton N.P, Butler, F. (2009). Effect of water immersion and *sous-vide* processing on total antioxidant activity, phenolic and carotenoid content and colour of carrots disks, *Journal of Food Processing and Preservation* 34 (6), 1009-1023
44. Tiwari, B. K., O'Donnell, C.P., **Patras, A.**, Brunton, N Cullen, P.J (2009). Effect of ultrasound processing on anthocyanins and color of red grape juice. *Ultrasonics Sonochemistry*, 17, 598–604

2008

45. Tiwari, B. K., O'Donnell, C. P., **Patras, A** & Cullen, P. J. (2008). Stability of anthocyanins and ascorbic acid in sonicated strawberry juice during storage. *European Food Research and Technology* 228 (5), pp. 717-724
46. Tiwari, B K., O'Donnell, C.P., **Patras, A** & Cullen, P. J. (2008). Anthocyanin and ascorbic acid degradation in sonicated strawberry juice. *Journal of agricultural and food Chemistry*, 56, 10071–10077

47. Tiwari, B.K., O'Donnell, C.P., **Patras, A.**, Brunton, N., Cullen, P.J. (2009) Effect of ozone processing on anthocyanins and ascorbic acid degradation of strawberry juice. *Food Chemistry* 113(4), 1119-1126

Publications (Conference proceedings/ Abstracts)

International

Tiwari, B.K., **Patras, A.**, Brunton, N., Cullen, P.J. and O'Donnell, C.P. (2009). Effect of sonication on the colour and anthocyanins content of grape juice (156-35). IFT Annual Meeting + Food Expo, Anaheim, CA., June 6th – 11, 2009.

Patras, A., Sontaro, D. (2010). Quantification of optical properties of opaque liquid using inverse adding doubling technique. Meeting + Research Expo, Trojan Technologies, London, Ontario, Canada, Dec, 12, 2010 (IP rights-Trojan Technologies)

Patras, A., Brunton N.P., Gormely T, R and Butler. (2007). Antioxidant potential of fruits and vegetables commonly consumed in Ireland. In second international symposium on human health effects of fruits and vegetables, Houston, TX, USA, October 9-13, 2007, pp-111.

Patras, A., Brunton N.P., Gormely T, R and Butler. (2007). Effect of sous-vide processing, canning conventional cooking and canning on total antioxidant capacity and phenolic, carotenoid content of carrots. In second international symposium on human health effects of fruits and vegetables, Houston, TX, USA, October 9-13, 2007, pp-90.

Patras, A & Gallagher, E. (2009). A novel approach in the determination of hydrolysis index and estimated glyceamic response of some breads commonly consumed in Republic of Ireland by RP- HPLC with Refractive Index Detection. In AACC International Annual Meeting, Baltimore, Maryland 13-16 September, 2009, pp- 33

Gallagher, E., Burton, P & **Patras, A.** (2009). Replacing wheat flour with lower GI ingredients in white wheat bread. In AACC International Annual Meeting, Baltimore, Maryland 13-16 September, 2009, pp- 86

Patras, A., Brunton, N.P., Gormley, T, R. and Butler. (2005). Measurement of the Antioxidant potential of a selection of vegetables. In: 35th Research Conference on Food, Nutrition and Consumer Science, University College, Cork, p 71.

Patras, A., Brunton N.P., Gormely T, R and Butler. (2007). Effect of high pressure processing on antioxidant capacity, phenolics, carotenoids and vitamin C of carrot and tomato puree. In: 37th Research Conference on Food, Nutrition and Consumer Science, University College, Cork, p 22.

Patras, A., Sontaro, D. Sasges, M. (2011). Quantifying and validating optical properties of opaque fluids. Meeting + Research Expo, Trojan Technologies, London, Ontario, Canada., Dec, 12, 2011 ((IP rights- Trojan Technologies)

MEMBERSHIPS OF PROFESSIONAL BODIES

- Member Institute of Food Technologist, USA
- Member of International Association of Food Protection, USA
- Member of Irish phytochemical network, Ireland,
- Member of AACC International, USA

COLLABORATING RESEARCH INSTITUTES & UNIVERSITIES

- Institute for Nanotechnology, University of Waterloo, Canada

- Teagasc, Department of Food Biosciences , Ireland
- Agrocampus Rennes, 65, rue de Saint Brieuc, F-3500 RENNES CEDEX, France
- University College Dublin, Department of Biosystems Engineering, Institute of Food & Health, Dublin, Ireland
- Dublin Institute of Technology, Dublin, Ireland
- University College Cork, Cork, Ireland
- School of Industrial Technology, Food Biopolymer Research Group, Food Technology Division, Malaysia
- Manchester Metropolitan University, Hollings Faculty, Manchester, UK
- National Institute of Health Dr Ricardo Jorge, Food and Nutrition Department, Lisbon
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- Guelph Food Research Centre, Guelph, AAFC, Ontario, Canada
- National By-products and Bioprocesses Program, Pacific AAFC, Canada, Summerland, BC, Canada

COLLABORATING COMPANIES

- Aquafine Corporation (USA)
- Vita CoCo (USA)
- Kellogg Company, Querétaro, (Mexico)
- Trojan Technologies (Canada)
- Carbery Foods Ltd (Ireland)
- Malone Food Products (Ireland)
- Maple Leaf (Canada)
- Shire Pharmaceuticals (UK)
- Johnson & Johnson (USA)