Jon Wilkin
Department of Built Environment and Life Sciences
Email: j.wilkin@abertay.ac.uk



Research interests

My research focuses on the intersection of food science, nutrition, and food processing, with a particular interest in enhancing the nutritional and functional quality of both traditional and novel food products. My work explores the impact of processing techniques—such as fermentation, germination, malting, ultrasonication, and thermal treatments—on the nutritional composition, techno-functional properties, digestibility, and sensory characteristics of cereals, legumes, seaweeds and composite foods. I have contributed to the development of fortified products including insect-enriched porridge and Moringa-infused baked goods, with an emphasis on sustainable and culturally relevant innovations for improving food security.
I also specialise in the use of gas chromatography–mass spectrometry (GC-MS) and related metabolomics approaches, to study the chemical and volatile profiles of food systems. Research includes investigations into the Maillard reaction, storage stability of oil-rich seeds and nuts, and the metabolomic characterisation of fermented cereal and legume products. Alongside this, I have a growing interest in seaweed consumerism, particularly in understanding how seaweed varieties such as *Alaria esculenta* and other brown seaweeds can be optimised for texture, digestibility, and consumer acceptance in functional food applications. Through this work, I aim to bridge the gap between food science innovation and real-world applications in nutrition, public health, and sustainable food systems.

Employment

Reader in Food Innovation &Knowledge Exchange
Department of Built Environment and Life Sciences
Abertay University
25 Nov 2025 → present

Research output

Physicochemical, nutraceutical and techno-functional properties of germinated African yam bean protein concentrate
Onwuka, Q. I., Chinma, C. E., Odimegwu, E. N., Adebo, J. A., Wilkin, J. & Adebo, O. A., 31 Oct 2026, In: Journal of Food Science. 91, 10, 15 p., e71588.

Nutritional and functional properties of composite flours made from processing finger millet, edible cricket flour and steamed spekboom powder for product development
Mahlanza, Z. P., Bamidele, O. P., Oyeyinka, S. A., Wilkin, J. & Adebo, O. A., 13 Oct 2026, *Proceedings of the IV International Symposium on Beverage Crops*. Fawole, O. A. & Aremu, A. O. (eds.). Leuven: International Society for Horticultural Science, Vol. 1466. p. 571-579 9 p. (Acta Horticulturae; vol. 1466).

Comparative analysis of heat and ultrasound inactivation of *Lactobacillus plantarum* NCTC 13644 fermented apple pomace: viability and postbiotic characteristics
Ude, C. G., Wilkin, J., Lemos, M. A. & Fiore, A., 1 Aug 2026, In: Food Bioscience. 82, 12 p., 109318.

Cross-national analysis of consumer preferences to oat-banana-drinks with *Alaria esculenta* in Germany and Scotland
Engelhardt, L. & Wilkin, J., 31 Jul 2026, In: Food Science and Nutrition. 14, 7, 14 p., e72102.

Sustainable valorisation of Apple pomace for postbiotic production: optimising GABA and free amino acid yields using Taguchi methodology
Ude, C. G., Fiore, A., Wilkin, J. & Lemos, A., 1 Jun 2026, In: Journal of Agriculture and Food Research. 28, 13 p., 102955.

Impact of steaming as a processing technique on the nutritional, health-promoting, and functionality of spekboom (*Portulacaria afra*) plant properties
Mahlanza, Z. P., Oyeyinka, S. A., Wilkin, J. D., Bamidele, O. P., Jimoh, A. A., Ananga, A. & Adebo, O. A., 10 Apr 2026, In: International Journal of Food Science & Technology. 61, 1, 12 p., vvag040.

GC-MS-based metabolomics for understanding the metabolite profile of mopane worm (*Gonimbrasia belina)* and sorghum (*Sorghum bicolor L*)
Maleke, M. S., Molelekoa, T. B. J., Wilkin, J., Feng, X., Ledbetter, M. & Adebo, O. A., 10 Oct 2025, In: Journal of Food Science. 90, 10, 16 p., e70599.

Enhancement of nutritional and functional properties in Finger Millet (*Eleusine coracana*) and cricket (*Acheta domesticus*) flours through traditional and novel processing methods
Mahlanza, Z. P., Bamidele, O. P., Oyeyinka, S. A., Wilkin, J. & Adebo, O. A., 9 Mar 2025, In: International Journal of Food Science + Technology. 60, 1, 15 p., vvaf056.

Metabolite profiles of processed finger millet (*Eleusine coracana*) and edible crickets (*Acheta domesticus*) using gas chromatography–mass spectrometry
Mahlanza, Z. P., Bamidele, O. P., Oyeyinka, S. A., Sobowale, S. S., Ledbetter, M., Wilkin, J. & Adebo, O. A., 4 Feb 2025, In: International Journal of Food Science and Technology. 60, 1, 15 p., vvaf021.

Effect of pre-processing treatment and concentration of *Alaria esculenta, Saccharina latissima*, and *Laminaria digitata* varieties on texture and consumer attribute preference of crackers
Ledbetter, M., Ross, K., Templeman, J., Chu, B.-S. & Wilkin, J. D., 12 Jan 2025, In: Food Science and Nutrition. 13, 1, 8 p. , e4710.

Effect of fermentation, malting and ultrasonication on sorghum, mopane worm and *Moringa oleifera*: improvement in their nutritional, techno-functional and health promoting properties
Maleke, M. S., Adebo, O. A., Wilkin, J., Ledbetter, M., Feng, X., Gieng, J. & Molelekoa, T. B. J., 2 Oct 2024, In: Frontiers in Nutrition. 11, 9 p., 1469960.

Gas chromatography–mass spectrometry analysis of metabolites in finger millet and Bambara groundnut as affected by traditional and novel food processing
Mudau, M., Chinma, C. E., Ledbetter, M., Wilkin, J. & Adebo, O. A., 1 Oct 2024, In: Journal of Food Science. 89, 10, p. 6394-6412 19 p.

Short-term germinated legume flours as functional ingredients in food products
Onwuka, Q. I., Chinma, C. E., Ezeocha, V. C., Otegbayo, B., Oyeyinka, S. A., Adebo, J. A., Wilkin, J., Bamidele, O. P. & Adebo, O. A., 1 Oct 2024, In: Journal of Food Science. 89, 10, p. 6070-6085 16 p.

Phytochemicals in pigmented maize and their promising health benefits
Chinma, C. E., Ezeocha, V. C., Adebo, J. A., Adebo, O. A., Wilkin, J., Bamidele, O. P. & Molelekoa, T. B. J., 21 Jul 2024, *Pigmented grains: nutritional properties, bioactive potential, and food application.* Singh, A., Sharma, S., Dar, B. N. & Boukid, F. (eds.). London: Academic Press, p. 93-118 26 p.

Flour functionality, nutritional composition, and in vitro protein digestibility of wheat cookies enriched with decolourised Moringa oleifera leaf powder
Agba, T. D., Yahaya-Akor, N. O., Kaur, A., Ledbetter, M., Templeman, J., Wilkin, J. D., Onarinde, B. A. & Oyeyinka, S. A., 25 May 2024, In: Foods. 13, 11, 16 p., 1654.

Physicochemical properties, anti-nutritional and bioactive constituents, in vitro digestibility, and techno-functional properties of bioprocessed whole wheat flour
Chinma, C. E., Ezeocha, V. C., Adebo, O. A., Adebo, J. A., Sonibare, A. O., Abbah, J. N., Danbaba, N., Makinde, F. M., Wilkin, J. & Bamidele, O. P., 1 Apr 2024, In: Journal of Food Science. 89, 4, p. 2202-2217 16 p.

Development of a nutritious cereal-based instant porridge by the incorporation of protein-rich insect powder - an example from Zimbabwe
Ledbetter, M., Wilkin, J. D., Mubaiwa, J., Manditsera, F. A., Macheka, L., Ruzengwe, F. M., Madimutsa, O. N., Chopera, P., Matsungo, T. M., Cottin, S. C., Stephens, W. E., Ranawana, V. & Fiore, A., 1 Jan 2024, In: Journal of Functional Foods. 112, 11 p., 105957.

Impact of germination on the techno-functional properties, nutritional composition, and health-promoting compounds of brown rice and its products: a review
Chinma, C. E., Adedeji, O. E., Jolayemi, O. S., Ezeocha, V. C., Ilowefah, M. A., Rosell, C. M., Adebo, J. A., Wilkin, J. D. & Adebo, O. A., 1 Jan 2024, In: Journal of Food Science. 89, 1, p. 8-32 25 p.

Sensory and affective response to chocolate differing in cocoa content: a TDS and facial electromyography approach
Wagner, J., Wilkin, J. D., Szymkowiak, A. & Grigor, J., 15 Oct 2023, In: Physiology and Behavior. 270, 10 p., 114308.

African cereal-based fermented products
Hlangwani, E., Njobeh, P. B., Chinma, C. E., Oyedeji, A. B., Fasogbon, B. M., Oyeyinka, S. A., Sobowale, S. S., Dudu, O. E., Molelekoa, T. B. J., Kesa, H., Wilkin, J. D. & Adebo, O. A., 21 Jan 2023, *Indigenous fermented foods for the tropics.* Adebo, O. A., Chinma, C. E., Obadina, A. O., Soares, A. G., Panda, S. K. & Gan, R.-Y. (eds.). London: Academic Press, p. 15-36 22 p.

SPME-GC-HRTOF-MS dataset of fermented maize flour volatilome: [version 1; peer review: 1 approved]
Adebo, O. A., Gbashi, S., Kewuyemi, Y. O., Sobowale, S. S., Adeboye, A. S., Njobeh, P. B., Oyeyinka, S. A., Wilkin, J. D. & Chinma, C. E., 20 Oct 2022, In: F1000Research. 11, 10 p., 1198.

Is high frequency ultrasound a useful process to add value to out of specification strawberries, raspberries, and blackberries industrially?
Hooper, M., McNeilly, A. D., Schaschke, C. & Wilkin, J. D., 1 Oct 2022, In: International Journal of Food Science & Technology. 57, 10, p. 6540-6547 8 p.

Optimisation of concentration of *Undaria pinnarifida* (Wakame) and *Himathalia elongate* (Sea Spaghetti) varieties to effect digestibility, texture and consumer attribute preference
Wilkin, J. D., Ross, K., Alric, T., Hooper, M., Grigor, J. V. & Seang-Chu, B., 14 Sept 2021, In: Journal of Aquatic Food Product Technology. 30, 8, p. 932-943 12 p.

The relationship between tendency to attend to detail, sensory sensitivity, and affective response to food cues: a registered report
Wagner, J., Grigor, J., Abdullah, A., Cannon, P., Wilkin, J., Robertson, P. & Szymkowiak, A., 1 Aug 2021, In: International Journal of Psychophysiology. 166, p. 50-60 11 p.

Application of gas chromatography mass spectrometry (GC-MS)-based metabolomics for the study of fermented cereal and legume foods: a review
Adebo, O. A., Oyeyinka, S. A., Adebiyi, J. A., Feng, X., Wilkin, J. D., Kewuyemi, Y. O., Abrahams, A. M. & Tugizimana, F., 1 Apr 2021, In: International Journal of Food Science and Technology. 56, 4, p. 1514-1534 21 p.

Delivering success in practical-based reformulation for health
Wilkin, J. D., 13 Nov 2019, *Reformulation as a strategy for developing healthier food products: challenges, recent developments and future prospects.* Raikos, V. & Ranawana, V. (eds.). Cham: Springer, p. 151-183 33 p.

Evaluation of Salmon (*Salmo salar*) and Rainbow Trout (*Oncorhynchus mykiss*) pin bones using textural analysis and micro X-ray computational tomography
Schroeder, S., Savage, A., Grigor, J. M., Sturrock, K., Cassidy, P., Topfl, S. & Wilkin, J. D., 1 Jul 2019, In: Journal of Food Science and Technology. 56, 7, p. 3313-3319 7 p.

The effect of collagenase, water and calcium chloride on the removal of *Salmo salar* (salmon) and *Oncorhynchus mykiss* (trout) pin bones
Schroeder, S., Grigor, J. M., Stathopoulos, C. E., Savage, A., Cassidy, P., Toepfl, S. & Wilkin, J. D., 31 Dec 2018, In: Aquaculture International. 26, 6, p. 1353-1363 11 p.

Impact of rapeseed press-cake on Maillard reaction in a cookie model system
Troise, A. D., Wilkin, J. D. & Fiore, A., 15 Mar 2018, In: Food Chemistry. 243, p. 365-372 8 p.

Impact of fiber and protein derived from rapeseed press-cake on Maillard Reaction in a cookie model system
Wilkin, J., Zenker, H., Tsang, C., Troise, A. D., Zhelev, N. & Fiore, A., Aug 2016, In: Journal of Experimental Food Chemistry. 2, 3 (Suppl.), p. 71-71 1 p.

Remote online assessments within food science – does it breed student engagement?
Wilkin, J. D., Aug 2016, *Professional practice in higher education teaching.* Watson, M. (ed.). Dundee: Abertay University Press, Vol. 5. p. 170-174 5 p.

Effect of sucrose on thermal and pH stability of Clitoria ternatea extract
Chu, B.-S., Wilkin, J. D., House, M., Roleska, M. & Lemos, M. A., 28 Jan 2016, In: International Journal of Food Processing Technology. 3, 1, p. 11-17 7 p.

Storage stability of whole and nibbed, conventional and high oleic peanuts (*Arachis hypogeae* L.)
Wilkin, J. D., Ashton, I. P., Fielding, L. M. & Tatham, A. S., Jan 2014, In: Food and Bioprocess Technology. 7, 1, p. 105–113 9 p.

Prizes

Building Skills Through Knowledge Exchange Award
Wilkin, J. (Recipient), 2017

Chartered Scientist
Wilkin, J. (Recipient), 12 Oct 2021

IFST Nomination for the Emerging Leaders Network
Wilkin, J. (Recipient), 14 Feb 2019

Innovation of the Year
Wilkin, J. (Recipient), 21 Feb 2017

Represents IFST at the IFT Emerging Leaders Network
Wilkin, J. (Recipient), 31 May 2019

Awards

Projects