

Profile: The overarching goal of my research is to increase scientific knowledge for the application of fundamental engineering principles towards reducing food waste and the climate impact of the food system, mostly in low-income countries. In that respect, I focus on the real-life implementation of both complex and low-tech engineering solutions. To achieve this, I aim to employ a system-based approach to all areas of the food supply chain.

1. Personal Information

Full Name	Daniel Iroemeha C. ONWUDE
Affiliation	Empa, Laboratory 401- Biomimetic Membranes and Textiles, St. Gallen, ETH domain, Switzerland
Contacts	daniel.onwude@empa.ch https://www.researchgate.net/profile/Daniel_Onwude http://orcid.org/0000-0002-2690-5823 www.dionwude.com
Research interests	Pre-harvest and Postharvest Engineering; Food Preservation & Process Engineering; Digital Twinning of Food Supply Chain; Food Packaging; Drying Technology; Modelling and Simulation; Life Cycle Assessment of Food Supply Chain; Non-destructive Testing & Computational Multiphysics
Competences	Computational Fluid Dynamics-Finite Element Modeling (COMSOL); Sensors and automation; Single-phase, Multiphase & Multiscale Modeling (COMSOL); Computer programming (MATLAB, Python); Statistical analysis (MATLAB, ORIGIN, R STUDIO, UNSCRAMBLER & SIGMA PLOT).

Academic research output

Over 65 peer-reviewed journal papers of high impact factor with Scopus and SCI-Index, 5 book chapters, and 5 copyrights

H-index ([Scopus](#)) = 17 (Author ID: 56993979400)

H-index ([Google scholar](#)) = 22 (Daniel Onwude)

i10-index ([Google scholar](#)) = 29 (Daniel Onwude)

2. Scientific Editorial Activities

2022 - present	Guest Editor: Digital innovation in Agricultural and Food Technology . Journal: Foods, MDPI, Switzerland
2020 - present	Associate Editor: Thermal Science and Engineering Progress (TSEP) , Elsevier; Editorial board member: Journal of Agricultural and Food Engineering .
2020 - 2021	Guest Editor: Special issue on "Advances in Postharvest Process Systems" . Journal: Processes, MDPI, Switzerland

3. Scientific Reviewing Activities

Publications, Book Chapters, and Copyright:	Postharvest Technology and Food Process Engineering Book reviewer (CRC Press); Reviewer for over 40 scientific journals with high impact factors, including Postharvest Biology and Technology, LWT-Food Science and
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Technology, Trends in Food Science and Technology, Processes, Agronomy, Journal of Cleaner Production, Comprehensive Reviews in Food Science and Food Safety, Journal of Food Processing and Preservation, Industrial Crops and Products, Chemical Product and Process Modelling, Drying Technology, Phytomedicine, International Journal of Food Engineering, Journal of the Science of Food and Agriculture, Innovative Food Science and Emerging Technologies, Food and Bioproduct Processing, International Journal of Energy Research, Computer and Electronics in Agriculture, Chemical Industry and Chemical Engineering Quarterly, Journal of Food Biochemistry, Environmental Engineering and Management Journal, Food Reviews International, Renewable and Sustainable Energy Reviews, and Food Control

4. Education

- 2014 - 2018** **Ph.D. in Agricultural Process Engineering**, August, 2018, Universiti Putra Malaysia (UPM).
- 2007 - 2012** **B. Eng. (Honors) in Agricultural Engineering**, August 2012, University of Uyo (Uniuyo), Nigeria.

5. Academic/Research Employment History

- 1st January 2022 - Present** **Scientist** - Simulating Biological System (SimBioSys) Group, Laboratory 401, Empa St. Gallen, ETH domain, Switzerland
- 1st January 2022 - Present** **Lecturer**, Department of Environmental Systems Science (D-USYS), ETHz, Switzerland
- 1st March 2021 - December 2021** **Postdoctoral Researcher** - Simulating Biological System (SimBioSys) Group, Laboratory 401, Empa St. Gallen, ETH domain, Switzerland
- 1st September 2020 - February 2021** **Academic Guest**, SNSF research grant. Host: Prof (Dr.) Thijs Defraeye of the Simulating Biological System (SimBioSys) Group, Laboratory 401, Empa St. Gallen, ETH domain, Switzerland
- 1st September 2019 - 31st August 2020** **ETHz Postdoctoral Research Fellow**, on a 1-year Swiss Excellent Government Scholarship at ETH Zurich, with joint affiliation to Empa St. Gallen, ETH domain, Switzerland
- 1st September 2019 - September 2021** **Lecturer I**, Department of Agricultural and Food Engineering, University of Uyo, Nigeria
- 12th May 2016 - August 2019** **Lecturer II**, Department of Agricultural and Food Engineering, University of Uyo, Nigeria
- 19th June 2014 - April 2016** **Graduate Assistant**, Department of Agricultural and Food Engineering, University of Uyo, Nigeria
- 1st November 2012 – September 2013** **Project Engineer**, Cross River State Agricultural Development Programme, Nigeria

6. Teaching at ETHz

- Second Semester 2021/2022** FS21: Simulations and Sensors in Agri-Food Supply Chains (751-5500-00L-FS21) (751-5500-00L-FS21), FS21, ETH Zurich
- Second Semester 2020/2021** FS21: Simulations and Sensors in Agri-Food Supply Chains (751-5500-00L-FS21) (751-5500-00L-FS21), FS21, ETH Zurich

7. Professional Membership/ Affiliation/Services

Member, The Institution of Engineering and Technology, 2018 - present;
Member, International Society for Horticultural Science (ISHS), 2015 – Present;
Member, American Society of Agricultural and Biological Engineers (ASABE), 2015 – Present;
Member, Nigerian Institution of Agricultural Engineers, 2013 – Present

8. Honors/Awards/Recognition

2022	Featured on " People Fixing the World " on BBC world service
2020 - 2022	Swiss National Science Foundation (SNSF) Grant (Empa)
2019 - 2020	Swiss Government Excellent Scholarship – Postdoctoral (ETH Zurich)
2019	Top cited article (Wiley): 2018-2019 "Investigating the influence of novel drying methods on sweet potato (<i>Ipomoea batatas</i> L.): Kinetics, energy consumption, color, and microstructure"
2019	Highly cited paper (Web of Science): Sep-Oct 2019 "The effectiveness of combined infrared and hot-air drying strategies for sweet potato"
2019	Highly cited paper (Web of Science): "Modeling the Thin-Layer Drying of Fruits and Vegetables: A Review"
2019	Publons Top Peer Reviewer (Cross-Field; Agricultural Sciences)
2018-2019	Outstanding Contribution in Reviewing for Computer and Electronics in Agriculture; Outstanding Contribution in Reviewing for Innovative Food Science and Emerging Technologies; Outstanding Contribution in Reviewing for LWT- Food Science and Technology Journal
2018	Best Ph.D. Thesis, Faculty of Engineering, UPM
2017	3 rd Place, 3MT, Three minutes thesis (3MT), Faculty of Engineering, UPM
2016-2018	Graduate Research Fellowship, International Graduate Research Fellowship, UPM
2016	Bronze medal, Invention, Research and Innovation Exhibition (PRPI) 2016, UPM
2011	Award of Merit, Best Student in Academic, Uniuyo
2006	EPNL scholarship, Elf Oil Producing Company

9. Publications (Only international peer-reviewed publications of the past 6 years)

Journals (Q1 - Q3 represents the SCI ranking quartile in Engineering, Agriculture and Food Science)

2022

1. **Onwude, Daniel. I.**, Bahrami, K., Shrivastava, C., Schudel, S., Crenna, E., Shoji, K., Cronje, P., Berry, T., North, J., Kristen, N., & Defraeye, T. (2022). Physics-driven digital twins to quantify the impact of pre- and postharvest variability on the quality evolution of orange fruit. *Resources, Conservation and Recycling*, 186, 106585. <https://doi.org/10.1016/j.resconrec.2022.106585> (Q1)

2. **Onwude, Daniel. I.**, Iranshahi, K., Rubinetti, D., Schudel, S., Schemminger, J., Martynenko, A., & Defraeye, T. (2022). How much do process parameters affect the residual quality attributes of dried fruits and vegetables for convective drying?. *Food and Bioproducts Processing*, 131, 176-190. <https://doi.org/10.1016/j.fbp.2021.11.005> (Q1)
3. **Onwude, D.**, Motmans, T., Shoji, K., Evangelista, R., Gajardo, J., Odion, D., ... & Defraeye, T. (2022). Bottlenecks in Nigeria's fresh food supply chain: What is the way forward?. *Engineering Archive*. <https://doi.org/10.31224/2447> (pre-print)
4. Odion, D., Shoji, K., Evangelista, R., Gajardo, J., Motmans, T., Defraeye, T., & **Onwude, D.** (2022). A GIS-based interactive map enabling data-driven decision-making in Nigeria's food supply chain. *Engineering Archive*. <https://doi.org/10.31224/2469> (pre-print)
5. Defraeye, T., Shoji, K., Schudel, S., **Onwude, D.**, & Shrivastava, C. (2022). Evaporative coolers for postharvest storage: where to best use them and how well do they work?. *Engineering Archive*. <https://doi.org/10.31224/2334> (pre-print)
6. Defraeye, T., Shrivastava, C., Schudel, S., Rebeaud, S. G., Karafka, L., Shoji, K., & **Onwude, D.** (2022). Combining experiments and mechanistic modeling to compare ventilated packaging types for strawberries from farm to retailer. *Engineering Archive*. <https://doi.org/10.31224/2319> (pre-print)
7. Seraina, S., Shoji, K., Shrivastava, C., Onwude, D., & Defraeye, T. (2022). Solution roadmap to reduce food loss along your postharvest supply chain from farm to retail. *Engineering Archive*. <https://doi.org/10.31224/2293> (pre-print)
8. Iranshahi, K., **Onwude, Daniel. I.**, Martynenko, A., & Defraeye, T. (2022). Dehydration mechanisms in electrohydrodynamic drying of plant-based foods. *Food and Bioproducts Processing*, 131, 202-216. <https://doi.org/10.1016/j.fbp.2021.11.009> (Q1)
9. Shoji, Kanaha., Schudel, Seraina., **Onwude, Daniel.**, Shrivastava, Chandrima., Defraeye, Thijs (2022) Mapping the postharvest life of imported fruits from packhouse to retail stores using physics-based digital twins. *Resources, Conservation and Recycling*, 176, 105914. <https://doi.org/10.1016/j.resconrec.2021.105914> (Q1)
10. Shoji, K., Schudel, S., Shrivastava, C., **Onwude, D.**, & Defraeye, T. (2022). Optimizing the postharvest supply chain of imported fresh produce with physics-based digital twins. *Journal of Food Engineering*, 329(March), 111077. <https://doi.org/10.1016/j.jfoodeng.2022.111077> (Q1)
11. Zulkifli, N., Hashim, N., Harith, H. H., Mohamad Shukery, M. F., & **Onwude, D. I.** (2022). Prediction of the ripening stages of papayas using discriminant analysis and support vector machine algorithms. *Journal of the Science of Food and Agriculture*, 102(8), 3266–3276. <https://doi.org/10.1002/jsfa.11669> (Q1)
12. Chia, Z. Bin, Putranto, A., Chen, X. D., & **Onwude, D. I.** (2022). Combined infrared and hot air drying (IR-HAD) of sweet potato explored using a multiphase model: application of reaction engineering approach. *Drying Technology*, 0(0), 1–10. <https://doi.org/10.1080/07373937.2022.2066118> (Q1)
13. Bualuang, O., **Onwude, Daniel. I.**, & Prangsri-aroon, S. (2022). The effect of various drying strategies on the greenness, chlorophyll, bioactive compounds, antioxidant activity and antityrosinase of dried *Acanthus ilicifolius* L. leaves. *International Food Research Journal*, 29(2). (Q2)
14. Defraeye, T., Schudel, S., Shrivastava, C., Motmans, T., Umani, K., Crenna, E., Shoji, K., & **Onwude, Daniel.** (2022). The charcoal cooling blanket: A scalable, simple, self-supporting evaporative cooling device for preserving fresh foods. *Engineering Archive*. <https://doi.org/https://doi.org/10.31224/2221> (pre-print)

15. Iranshahi, K., **Onwude, Daniel I.**, Martynenko, A., & Defraeye, T. (2022). Dehydration mechanisms in electrohydrodynamic drying of plant-based foods. *Food and Bioproducts Processing*, 131, 202-216. <https://doi.org/10.1016/j.fbp.2021.11.009> (Q1)

2021

16. **Onwude, Daniel I.**, Iranshahi, Kamran., Rubinetti, Donato., Martynenko, Alex., Defraeye, Thijs., (2021). Scaling-up electrohydrodynamic drying for energy-efficient food drying via physics-based simulations. *Journal of Cleaner Production* 329, 129690. <https://doi.org/10.1016/j.jclepro.2021.129690> (Q1)
17. **Onwude, Daniel I.**, Iranshahi, Kamran., Martynenko, Alex., Defraeye, Thijs., (2021). Electrohydrodynamic drying: Can we scale-up the technology to make dried fruits and vegetables more nutritious and appealing? *Comprehensive Reviews in Food Science and Food Safety*. <https://doi.org/10.1111/1541-4337.12799> (Q1)
18. **Onwude, Daniel I.**, Chen, G. (2021). Special Issue. "Advances in Postharvest Process Systems". *Processes*, 9, 1426. <https://doi.org/10.3390/pr9081426> (Q2)
19. Zulkifli, N., Hashim, N., Harith, H. H., Mohamad Shukery, M. F., & **Onwude, D.I.** (2021). Prediction of the ripening stages of papayas using discriminant analysis and support vector machine algorithms. *Journal of the Science of Food and Agriculture*. <https://doi.org/10.1002/jsfa.11669> (Q1)
20. Shrivastava, Chandrima., Crenna, Eleonora., Schudel, Seraina., Shoji, Kanaha., **Onwude, Daniel.**, Hischier, Roland., Defraeye, Thijs (2021). To wrap or to not wrap cucumbers? [10.31224/osf.io/dyx9b](https://doi.org/10.31224/osf.io/dyx9b) (Preprint)
21. Fadji T, Ashtiani SHM, **Onwude DI**, Li Z, Opara UI (2021). Finite element method for freezing and thawing industrial food processes. *Foods*, 10 (4), 869. <https://doi.org/10.3390/foods10040869> (Q1)
22. Ndukwu MC, **Onwude DI**, Ehiem J, Abada UC, Ekop IE, Chen G (2021). The Effectiveness of Different Household Storage Strategies and Plant-Based Preservatives for Dehulled and Sun-Dried Breadfruit Seeds. *Processes*; 9(2):380. <https://doi.org/10.3390/pr9020380> (Q2)
23. Zulkifli N, Hashim N, Harith HH, Mohamad Shukery MF, **Onwude DI**, Sairi M. (2021). Reliability of Finite Element Analysis to Determine the Mechanical Responses in Fruits and Root-Vegetables. *Advances in Agricultural and Food Research Journal*, 2(1). <https://doi.org/10.36877/aafri.a0000205>
24. Zulkifli N, Hashim N, Harith HH, Mohamad Shukery MF, **Onwude DI**, Sairi M. Finite Element Modelling for Predicting the Puncture Responses in Papayas (2021). *Foods*. 10(2):442. <https://doi.org/10.3390/foods10020442> (Q1)
25. Thijs Defraeye, Chandrima Shrivastava, Tarl Berry, Pieter Verboven, **Daniel Onwude**, Seraina Schudel, Andreas Bühlmann, Paul Cronje, René M. Rossi (2021). Digital twins are coming: Will we need them in the supply chain of fresh horticultural produce? *Trends in Food Science & Technology*, 109:245-258. <https://doi.org/10.1016/j.tifs.2021.01.025> (Q1)
26. Min, C., Yang, X., He, J., Wang, K., Xie, L., **Onwude, D. I.**, ... & Wu, H. (2021). Experimental investigation on heat recovery from flue gas using falling film method. *Thermal Science and Engineering Progress*, 100839. <https://doi.org/10.1016/j.tsep.2021.100839> (ISI-indexed)

2020

27. Thijs, Defraeye, and **Daniel I. Onwude**. "The future of digital twins for drying." (2020): *Drying technology*, 1-2. <https://doi.org/10.1080/07373937.2021.1860312> (Q1)
28. **Onwude, Daniel I.**, Chen, G., Eke-emezie, N., Kabutey, A., Khaled, Y. A., Sturm, B. (2020). Recent advances in reducing food losses in the supply chain of fresh agricultural produce. *Processes* 8(11):143. <https://doi.org/10.3390/pr8111431> (Q2)
29. Ndukwu, M. C., **Onwude, D. I.**, Bennamoun, L., Abam, F. I., Simo-Tagne, M., Horsfall, I. T., & Briggs, T. A. (2020). Nigeria's Energy deficit: The challenges and Eco-friendly approach in reducing the energy gap.

30. **Onwude, Daniel I.**, Hashim, N., Chen, G., Putranto, A., & Udoenoh, N. R. (2020). A Fully Coupled Multiphase Model for Infrared-Convective Drying of Sweet Potato. *Journal of the Science of Food and Agriculture*, jsfa.10649. <https://doi.org/10.1002/jsfa.10649> (Q1)
31. **Onwude, D. I.**, Hashim, N., & Dana, A. A. (2020). Backscattering Imaging as a Monitoring System for Moisture Content and Colour Changes in Pumpkin during Drying Process, *ASM Science Journal* (4), 27–35 (Scopus indexed)
32. **Onwude, D. I.**, Hashim, N., Abdan, K., Janius, R., Che Adan, S. N., & Jalaluddin, A. (2020). RGB imaging for monitoring quality parameters of sweet potato during drying. *ISHS Acta Horticulturae* 1279 (pp. 217-224). <https://doi.org/10.17660/ActaHortic.2020.1279.32> (Scopus indexed).

2019

33. Lockman, N.A., Hashim, N. & **Onwude, D.I.** (2019). Laser-Based imaging for Cocoa Pods Maturity Detection. *Food Bioprocess Technology*, 12, 1928-1937. <https://doi.org/10.1007/s11947-019-02350-7> (Q1)
34. M.C. Ndukwu, I.E. Ekop, P.J. Etim, C.N. Ohakwe, N.R. Ezejiofor, **Onwude D.I.**, F.I. Abam, E.C. Igboayaka, A. Ohia, (2019). Response surface optimization of Bambara nut kernel yield as affected by speed of rotation, and impeller configurations, *Scientific Africa*, 6:e00174. <https://doi.org/10.1016/j.sciaf.2019.e00174> (Open access)
35. Bualuang O, **Onwude D.I.**, Uso A, et al. (2019). Determination of drying kinetics, some physical, and antioxidant properties of papaya seeds undergoing microwave vacuum drying. *J Food Process Eng.* e13176. <https://doi.org/10.1111/jfpe.13176> (Q2)
36. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., and Chen, G. (2019). Experimental studies and mathematical simulation of intermittent infrared and convective drying of sweet potato (*Ipomoea batatas* L.). *Food and Bioprocess Processing* 114: 163-174. <https://doi.org/10.1016/j.fbp.2018.12.006> (Q1)
37. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., and Chen, G. (2019). The effectiveness of combined infrared and hot-air drying strategies for sweet potato. *Journal of Food Engineering* 241: 75-97. <https://doi.org/10.1016/j.jfoodeng.2018.08.008> (Q1)

2018

38. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., and Chen, G. (2018). Numerical Modelling of Radiative Heat and Mass Transfer in Sweet Potato During Drying. *Journal of Food Processing and Preservation*, 42 (10): e13741. <https://doi.org/10.1111/jfpp.13741> (Q2)
39. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., and Chen, G. (2018). Combination of computer vision and backscattering imaging for predicting the moisture content and colour changes of sweet potato (*Ipomoea batatas* L.) during drying. *Computer and Electronics in Agriculture* 150: 178-187. <https://doi.org/10.1016/j.compag.2018.04.015> (Q1)
40. Hashim, **Onwude, D.I.**, and Osman, M.S. (2018). Evaluation of Chilling Injury in Mangoes Using Multispectral Imaging. *Journal of Food Science* 83(5):1271-1279. <https://doi.org/10.1111/1750-3841.14127> (Q1)
41. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., and Chen, G. (2018). Modelling the mid-infrared drying of sweet potato: kinetics, mass and heat transfer parameters, and energy consumption. *Journal of Heat and Mass Transfer* 54(10): 2917-2933. <https://doi.org/10.1007/s00231-018-2338-y> (Q2)

42. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R. and Chen, G. (2018). Investigating the influence of novel drying methods on sweet potato (*Ipomoea batatas* L.): Kinetics, energy consumption, color, and microstructure. *Journal of Food Process Engineering*, 41(4) e12686. <https://doi.org/10.1111/jfpe.12686> (Q2)
43. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., Chen, G. and Kumar, C. (2018). Modelling of coupled heat and mass transfer for combined infrared and hot-air drying of sweet potato. *Journal of Food Engineering*, 228: 12-24. <https://doi.org/10.1016/j.jfoodeng.2018.02.006> (Q1)
44. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R. and Chen, G. (2018). The potential of computer vision, optical backscattering parameters and artificial neural network modelling in monitoring the shrinkage of sweet potato (*Ipomoea Batatas* L.) during drying. *Journal of the Science of Food and Agriculture* 98: 1310-1324. <https://doi.org/10.1002/jsfa.8595> (Q1)

2017

45. **Onwude, D.I.**, Hashim, N., Abdan, K., Janius, R., Chen, G. and Oladejo, A.O. (2017). Non-thermal hybrid drying of fruits and vegetables: A review of current technologies. *Innovative Food Science and Emerging Technologies*, 43: 223-238. <https://doi.org/10.1016/j.ifset.2017.08.010> (Q1)
46. **Onwude, D. I.**, Hashim, N., Janius, R. B., Nawi, N. M. and Abdan, K. (2017). Color change kinetics and total carotenoid content of pumpkin as affected by drying temperature. *Italian Journal of Food Science*, 29: 1-18. <https://doi.org/10.14674/1120-1770/ijfs.v398> (Q3)
47. Alfadhl K., Samsuzana A., Siti Khairunniza B., Nazmi N., Idris S. and **Onwude D.I.** (2017). Early Detection of Diseases in Plant Tissue Using Spectroscopy – Applications and Limitations. *Applied Spectroscopy Reviews* 53 (1): 36-64. <https://doi.org/10.1080/05704928.2017.1352510> (Q1)
48. Oladejo, A.O, Ma, H., Qu, W., Zhou, C., Wu, B., Bernard, B.U., **Onwude D.I.**, Yang, X. (2017). Application of Pretreatment Methods on Agricultural Products Prior to Frying-a review. *Journal of the Science of Food and Agriculture*, 98(2): 456-466. <https://doi.org/10.1002/jsfa.8502> (Q1)
49. Oladejo, A.O, Ma, H., Qu, W., Zhou, C., Wu, B., Bernard, B.U., **Onwude D.I.**, (2017). Effects of ultrasound pretreatments on the kinetics of moisture loss and oil uptake during deep fat frying of sweet potato (*Ipomea batatas*). *Innovative Food Science and Emerging Technologies*, 43(2): 7-17. <https://doi.org/10.1016/j.ifset.2017.07.019> (Q1)
50. **Onwude D.I.**, Hashim N., Solehin K.M. (2017). Optical method for the detection of moisture content of pumpkin during drying. *Acta Hort.* 1152: 313-318. <https://doi.org/10.17660/ActaHortic.2017.1152.42> (Indexed by Scopus)
51. Ikrang EG., Whyte AA., Maurice AM., Akubuo CO., **Onwude D.I.** (2017). Design and fabrication of a direct passive solar dryer for tilapia fish filets. *Acta Hort.* 1152: 63-69. <https://doi.org/10.17660/ActaHortic.2017.1152.9> (Indexed by Scopus)

2016

52. **Onwude, D. I.**, Hashim, N., Janius, R. B., Nawi, N. M., and Abdan, K. (2016). Modelling the convective drying process of pumpkin (*Cucurbita moschata*) using an artificial neural network. *International Food Research Journal*, 23 (Suppl): S237-S243. (Q3)
53. **Onwude, D. I.**, Hashim, N., and Chen, G. (2016). Recent advances of novel thermal combined hot air drying of agricultural crops. *Trends in Food Science & Technology*, 57: 132-145. <https://doi.org/10.1016/j.tifs.2016.09.012> (Q1)
54. **Onwude, D. I.**, Hashim, N., Janius, R. B., Nawi, N. M., and Abdan, K. (2016). Modelling effective moisture diffusivity of pumpkin (*Cucurbita moschata*) slices under convective hot air-drying condition. *International Journal of Food Engineering*, 12(5): 481-489. <https://doi.org/10.1515/ijfe-2015-0382> (Q3)

55. **Onwude, D. I.**, Abdulstter, R. Gomes, C., and Hashim, N. (2016). Mechanisation of large-scale agricultural fields in developing countries - A Review. *Journal of the Science of Food and Agriculture*, 96: 3969–3976. <https://doi.org/10.1002/jsfa.7699> (Q1)
56. **Onwude, D. I.**, Hashim, N., Janius, R. B., Nawi, N. M., and Abdan, K. (2016). Evaluation of a suitable thin layer model for drying of pumpkin under forced air convection. *International Food Research Journal*, 23(3): 1173-1181 (Q3)
57. **Onwude, D. I.**, Hashim, N., Janius, R. B., Nawi, N. M., and Abdan, K. (2016). Modeling the Thin-Layer Drying of Fruits and Vegetables - A Review. *Comprehensive Reviews in Food Science and Food Safety*, 15: 599-618. <https://doi.org/10.1111/1541-4337.12196> (Q1).
58. Bualuang, O., **Onwude D. I.**, Pracha, K., (2016). Microwave drying of germinated corn and its effect on phytochemical properties. *Journal of the Science of Food and Agriculture*, 97(9): 2999-3004. <https://doi.org/10.1002/jsfa.8140> (Q1).
59. Alonge A.F., Basse E., Esua J., **Onwude D. I.** (2016). Development and Preliminary Testing of Bambara Groundnut Sheller. *International Food Research Journal*, 23(Suppl): S7-S13. (Q3)

Books /Book Chapters

1. Hashim, N., **Onwude, D. I.**, & Maringgal, B. (2022). Chapter 15 - Technological advances in postharvest management of food grains. In B. Prakash (Ed.), *Research and Technological Advances in Food Science* (pp. 371–406). Academic Press. <https://doi.org/10.1016/B978-0-12-824369-5.00016-6>
2. **Onwude, Daniel I.** and Chen, Guangnan (2021) *Advances in postharvest process systems*. MDPI, Basel, Switzerland. ISBN 978-3-0365-2373-6. <https://www.mdpi.com/books/pdfview/book/4572>
3. **Onwude D. I.**, Chen Guangnan, Hashim Norhashila, Chandima Gomes, Esdaile Jeff R., Alfadhl Y. Khaled, Alonge A.F., Ikrang Elijah (2018). Mechanisation of agricultural production in developing countries. In: *Advances in Agricultural Machinery and Technologies*. **CRC Press, Taylor & Francis (March 2018)**
4. Om Prakash, Anil Kumar, Prashant Singh Chauhan, **Onwude, Daniel (2017)**. Energy Analysis of the Direct/Indirect Solar Drying System. In: “Solar Drying Technology: concept design testing modeling economics and the environment”. **Springer Singapore** in 2017. Series Title: Green Energy and Technology, eBook ISBN 978-981-10-3833-4, Hardcover ISBN 978-981-10-3832-7, Series ISSN 1865-3529.
5. Treatment of scheduled waste landfill leachate: Perspective in Malaysia. Hasfalina, C.M., Nurul Hanira, M.L., Aida Isma, M.I., M.Rashid, M.Y., Luqman Chuah, A., **Onwude D. I.** In *Nutrients, Wastewater and Leachate: Testing, Risks and Hazards (2018)*. Environmental Science, Engineering and Technology, Nova Science Publishers, Inc. New York. Amimul Ahsan, Editor. ISBN 978-1-53613-949-5