Ahmad Addo

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PROFILE

I am a professor of agricultural engineering in the Department of Agricultural and Biosystems Engineering at Kwame Nkrumah University of Science and Technology.

RESEARCH

Interests	Agricultural Process Engineering and Renewable Energy
Areas	Biomedical Engineering · Plant Science · Pollution · Building and Construction · Food Science · Mechanical Engineering

RESEARCH SUMMARY

117	1,230	16	35	1.25	12%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 117 publications listed below, 1983–2026. Field-weighted impact is the mean over the 75 works scored for it; 1.00 is the world average for works of the same field, type and year. 9 of the 75 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Acting Director 2013–present
The Energy Center, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Associate Professor 2003–present
Agricultural Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Agricultural Engineer 1991–1994
Engineering, Kpong Farms Limited, Volta River Authority, Akuse, Ghana

EDUCATION AND QUALIFICATIONS

PhD 1997–2002
University of Tsukuba, Tsukuba, Japan

MSc 1995–1997
Graduate School of Biosystem Studies, University of Tsukuba, Tsukuba, Japan

BSc (Hons) 1985–1990
Agricultural Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

PUBLICATIONS

Journal articles 113

1. Mark Korang Yeboah, Nana Yaw Asiedu, **Ahmad Addo** (2026). Dynamic Pareto Optimization of Consolidated Bioprocessing for Ethanol Titer, Productivity, Conversion, and Operating Severity. *Bioengineering*. https://doi.org/10.3390/bioengineering13060605
2. Mark Korang Yeboah, **Ahmad Addo**, Nana Yaw Asiedu (2026). Multi-Product Modeling of Consolidated Bioprocessing Using a Literature-Derived Dataset: A Multi-Output Learning Framework for Ethanol and Co-Products. *Fermentation*. https://doi.org/10.3390/fermentation12050224
3. Mark Korang Yeboah, Nana Yaw Asiedu, **Ahmad Addo** (2026). Observability- and Identifiability-Guided Sensor-Set Design for Digital-Twin-Assisted Consolidated Bioprocessing. *Sensors*. https://doi.org/10.3390/s26123948
4. Mark Korang Yeboah, **Ahmad Addo**, Nana Yaw Asiedu (2026). Robust surrogate-assisted batch-to-batch optimization of consolidated bioprocessing under plant–model mismatch. *Chemical Engineering Science*. https://doi.org/10.1016/j.ces.2026.124663
5. Mark Korang Yeboah, Nana Yaw Asiedu, **Ahmad Addo** (2026). Trajectory-level dynamic validation of a phase-structured grey-box model for consolidated bioprocessing using literature-derived ethanol trajectories. *Biotechnology for Biofuels and Bioproducts*. https://doi.org/10.1186/s13068-026-02805-y
6. Thomas Ansong Agyei, Shadrack kwadwo Amponsah, Joseph Oppong Akowuah, **Ahmad Addo** (2025). Evaluating the Performance of Thin-Layer Drying Models in Predicting the Drying Behavior of Catfish Flesh Under Convective and Microwave Drying. *Journal of Food Processing and Preservation*. https://doi.org/10.1155/jfpp/2179898
7. Samuel Ayetibo Ofori, Papa Kofi Amissah-Reynolds, **Agyapong Kofi Addo**, Osei Kyeremeh, Joshua Dwomoh, Daniel Twene Gyasi (2025). Hematological, biochemical, and histopathological changes in laboratory rats naturally infected with gastrointestinal parasites. *Discover Animals*. https://doi.org/10.1007/s44338-025-00064-z
8. NY Asiedu, **A Addo** (2025). Modelling of Consolidated Bioprocessing with Encoded Microbial Consortium for Bioethanol Production: Polynomial Models Versus Machine Learning Models. *8th International Conference on Microbiome Engineering*. https://aiche.confex.com/aiche/icme25/meetingapp.cgi/Paper/723027
9. Amma Konadu Adjei, Eunice Dogbe, Nana Yaw Asiedu, Enoch Asante, **Ahmad Addo**, Razak Seidu (2025). Multi-response optimization and machine learning modeling algorithms of electrocoagulation parameters for cost-effective micro-algae harvesting. *Next Chemical Engineering*. https://doi.org/10.1016/j.nxcen.2025.100019
10. Thomas Ansong Agyei, Shadrack Kwadwo Amponsah, Joseph Oppong Akowuah, **Ahmad Addo** (2025). Polycyclic Aromatic Hydrocarbon Profiles and Carcinogenic Risks Associated With Smoked Catfish and Rabbit Meat: A Comparative Study of Traditional and Improved Smoking Methods. *Journal of Food Quality*. https://doi.org/10.1155/jfq/8759400
11. Tolulope Adeyemi Kayode, **Agyapong Kofi Addo**, Thomas Kwame Addison, Austine Tweneboah, Stephen Opoku Afriyie, Dawood Ackom Abbas, Ayesha Seth, Abraham K. Badu-Tawiah, Kingsley Badu, Cristian Koepfli (2024). Comparison of three rapid diagnostic tests for Plasmodium falciparum diagnosis in Ghana. *Malaria Journal*. https://doi.org/10.1186/s12936-024-05073-z
12. Enoch Asante, Nana Yaw Asiedu, Samuel Sarpong, Emmanuel Okoh Agyemang, Ibrahim Ajani, Augustine Ntiamoah, Albert Amatey Adjaottor, **Ahmad Addo** (2024). Modeling and assessment of the techno-economic analysis of biogas and its potential for the generation of electricity from water hyacinth biomass. *Journal of Engineering and Applied Science*. https://doi.org/10.1186/s44147-024-00431-9
13. Nana Yaw Asiedu, Peter Paul Bamaalabong, Jesse Essuman Johnson, Jude Kwaku Bonsu, **Ahmad Addo** (2024). Modeling, simulations, and Simulink developments in the analysis of optimal control of temperature and pH in a batch ethanol fermentation process. *Journal of Engineering and Applied Science*.

https://doi.org/10.1186/s44147-024-00517-4

14. Mark Korang Yeboah, Nana Yaw Asiedu, Sefakor Dogbe, **Ahmad Addo** (2024). Performance of Machine Learning Based-Modelling Approach in Consolidated Bioprocessing with Microbial Consortium for Bioethanol Production. *Industrial Biotechnology*. https://doi.org/10.1089/ind.2024.0003
15. Enoch Asante, Nana Yaw Asiedu, Emmanuel Okoh Agyemang, Elvis Boateng, Augustine Ntiamoah, Albert Amatey Adjaottor, **Ahmad Addo** (2024). The influence of particle size on biomethanation: a study of Eichornia crassipes biomass (water hyacinth) from the Lower Volta River in Ghana using fruit waste sludge as inoculum source. *Biomass Conversion and Biorefinery*. https://doi.org/10.1007/s13399-024-05638-7
16. Enoch Asante, Nana Yaw Asiedu, Elvis Boateng, Emmanuel Okoh Agyemang, Ibrahim Ajani, Augustine Ntiamoah, Albert Amatey Adjaottor, **Ahmad Addo** (2024). Thermodynamic analysis of anaerobic digestion of Eichornia crassipes (Water Hyacinth) biomass from the Volta River basin of Ghana using fruit waste sludge as inoculum. *Chemical Thermodynamics and Thermal Analysis*. https://doi.org/10.1016/j.ctta.2024.100131
17. Hayford Ofori, **Ahmad Addo** (2023). A review of baobab (Adansonia digitata) fruit processing as a catalyst for enhancing wealth and food security. *Journal of the Ghana Institution of Engineering (JGhIE)*. https://doi.org/10.56049/jghie.v23i2.66
18. **A Addo**, F Kemausuor (2023). Development of Integrated QFD/MCDM Framework for Optimal Selection of Gasifier Reactor for Crop Residue Gasification in Ghana. *Ghana Mining Journal*. https://journals.umat.edu.gh/index.php/gmj/article/view/674
19. Hayford Ofori, Ato Bart-Plange, **Ahmad Addo**, Komla Agbeko Dzisi (2023). Impact of Different Oil Extraction Techniques on the Physicochemical Properties of Adansonia digitata Seed. *International Journal of Food Science*. https://doi.org/10.1155/2023/6233461
20. Isaac Osei, **Ahmad Addo**, Francis Kemausuor (2023). Multi-level framework for optimal operation of gasifier system utilising crop residues from small and medium-scale farms. *Journal of the Ghana Institution of Engineering (JGhIE)*. https://doi.org/10.56049/jghie.v23i4.114
21. **A Addo**, F Kemausuor (2023). Optimal Design of Gasifier Reactor for Crop Residues Gasification Using Integrated MCDM Techniques/QFD Approach. *Ghana Mining Journal*. https://journals.umat.edu.gh/index.php/gmj/article/view/675
22. Isaac Osei, **Ahmad Addo**, Francis Kemausuor (2023). Optimal evaluation of crop residues for gasification in Ghana using integrated multi-criterial decision making techniques. *Heliyon*. https://doi.org/10.1016/j.heliyon.2023.e20553
23. Isaac Godfred Antwi, **Ahmad Addo**, Ato Bart-Plange (2023). Temperature and Variety Effects on Antioxidant Retention of Abotem, Aborohema, Omankwa, Abeleehi and Dorke SR. *The International Journal of Science & Technoledge*. https://doi.org/10.24940/theijst/2023/v11/i4/st2304-010
24. **Ahmad Addo**, RA Annan, C Apprey, R Aryeetey (2022). A review of Ghana's food system and its implications on sustainability and the development of national food-based dietary guidelines. *African Journal of Food Agriculture Nutrition and Development*. https://doi.org/10.18697/ajfand.107.21800
25. Francis Amoah, Emmanuel Y. H. Bobobee, **Ahmad Addo**, Joseph O. Darko, Joseph O. Akowuah (2022). A review of mechanical cassava peeling and its adoption by processors. *Journal of the Ghana Institution of Engineering (JGhIE)*. https://doi.org/10.56049/jghie.v22i1.37
26. Jonathan Ampah, Komla Agbeko Dzisi, **Ahmad Addo**, Ato Bart-Plange (2022). Drying Kinetics and Chemical Properties of Mango. *International Journal of Food Science*. https://doi.org/10.1155/2022/6243228
27. Isaac Godfred Antwi, **Ahmad Addo**, Ato Bart-Plange (2022). Effects of Temperature and Variety on Rehydration Parameters and Solute Loss during Soaking of Omakwa and Abrohemaa Maize Varieties. *Asian Food Science Journal*. https://doi.org/10.9734/afsj/2022/v21i330417
28. Hayford Ofori, Komla Agbeko Dzisi, Ato Bart Plange, **Ahmad Addo** (2022). Influence Of Moisture Content On Some Physical Properties Of Baobab Seeds (Adansonia Digitata) In Relation To Equipment Development For Postharvest Processing And Handling. *JOURNAL OF ADVANCES IN AGRICULTURE*.

https://doi.org/10.24297/jaa.v13i.9316

29. **A Addo**, F Kemausuor (2022). Integrated Multicriteria Decision Making Techniques and Quality Function Deployment for Optimal Design of Gasifier Reactor for Crop Residues. *Proceedings of the 7th UMaT Biennial Conference*. https://conference.umat.edu.gh/wp-content/uploads/2023/06/Osei-et-al-QFD-MCDM.pdf

30. George Obeng-Akrofi, Joseph Oppong Akowuah, Dirk E. Maier, **Ahmad Addo** (2022). Selection of an Appropriate Biomass Burner for Drying Maize in a Crossflow Column Dryer Using an Analytic Hierarchy Process. *Journal of Applied Agricultural Science and Technology*. https://doi.org/10.55043/jaast.v6i2.63

31. Isaac Godfred Antwi, **Ahmad Addo**, Ato Bart-Plange (2022). The Hydration Kinetics of Selected Ghanaian Maize (Zea mays L.) Hybrids. *Open Journal of Applied Sciences*. https://doi.org/10.4236/ojapps.2022.121008

32. Isaac Osei, **Ahmad Addo**, Francis Kemausuor (2021). Crop Residues Utilisation for Renewable Energy Generation in Ghana: Review of Feedstocks Assessment Approach, Conversion Technologies and Challenges.

33. A. K. Arkoh, E. Y. H. Bobobee, **A. Addo** (2021). Development of a Double Row Tractor Operated Yam Minisett Planter. *International Journal of Engineering and Advanced Technology*. https://doi.org/10.35940/ijeat.a3114.1011121

34. **A Addo** (2021). Performance assessment of manual rice harvesting methods under farmer's field conditions. *Agricultural Engineering International: CIGR Journal*. https://cigrjournal.org/index.php/Ejounral/article/view/6507

35. George Obeng-Akrofi, Joseph O. Akowuah, Dirk E. Maier, **Ahmad Addo** (2021). Techno-Economic Analysis of a Crossflow Column Dryer for Maize Drying in Ghana. *Agriculture*. https://doi.org/10.3390/agriculture11060568

36. Peter P. Bamaalabong, Nana Y. Asiedu, F. Abunde Neba, Francesca Baidoo, **Ahmad Addo** (2021). Theoretical formulations and simulations of one-dimensional inhibition kinetics of ethanologenic microorganisms in batch fermenters. *SN Applied Sciences*. https://doi.org/10.1007/s42452-021-04771-6

37. Isaac Godfred Antwi, **Ahmad Addo**, Ato Bart-Plange (2021). Water Diffusion Coefficients of Selected Legumes Grown in Ghana as Affected by Temperature and Variety. *Open Journal of Applied Sciences*. https://doi.org/10.4236/ojapps.2021.118063

38. F. Abunde Neba, Michel Tornyeviadzi, Nana Y. Asiedu, **Ahmad Addo**, John Morken, Stein W. Østerhus, Razak Seidu (2020). Can the operating limits of biogas plants operated under non-isothermal conditions be defined with certainty? Modeling self-optimizing attainable regions. *Computers & Chemical Engineering*. https://doi.org/10.1016/j.compchemeng.2020.107001

39. Linda Dari, **Ahmad ADDO**, Komla Agbeko DZISI (2020). Determination of Pesticide Residuals in Soil and Tomato Fruits from Two Tomato Production Areas in northern Ghana. *Ghana Journal of Science Technology and Development*. https://doi.org/10.47881/167.967x

40. **Ahmad Addo**, Sandra Boakye, Lawrence Sheringham Borquaye, Matt Dodd, Godfred Darko (2020). Distribution of heavy metals in soils from abandoned dump sites in Kumasi, Ghana. *Scientific African*. https://doi.org/10.1016/j.sciaf.2020.e00614

41. Peter P. Bamaalabong, Nana Y. Asiedu, F. Abunde Neba, **Ahmad Addo** (2020). Dynamic Behavior, Simulations, and Kinetic Analysis of Two-Dimensional Substrate–Product Inhibitions in Batch Fermentation Processes. *Industrial & Engineering Chemistry Research*. https://doi.org/10.1021/acs.iecr.0c01176

42. F. Abunde Neba, Hoese M. Tornyeviadzi, **Ahmad Addo**, Nana Y. Asiedu, John Morken, Stein W. Østerhus, Razak Seidu (2020). Geometry, kinetics and reactor network synthesis: Attainable limits for minimizing residence time in biomethane digesters. *Computers & Chemical Engineering*. https://doi.org/10.1016/j.compchemeng.2020.106816

43. Mary Mensah, Nana Yaw Asiedu, Fabrice Abunde Neba, Prince Nana Amaniampong, Patrick Boakye, **Ahmad Addo** (2020). Modeling, optimization and kinetic analysis of the hydrolysis process of waste cocoa

pod husk to reducing sugars. *SN Applied Sciences*. https://doi.org/10.1007/s42452-020-2966-y

44. Shadrack Kwadwo Amponsah, **Ahmad Addo**, Enoch Bessah, Francis Kumi (2020). Techno-economic assessment of mechanised reaping and sickle cutting options for smallholder rice farmers. *Cogent Food & Agriculture*. https://doi.org/10.1080/23311932.2020.1847888
45. F. Abunde Neba, Nana Y. Asiedu, **Ahmad Addo**, John Morken, Stein W. Østerhus, Razak Seidu (2019). A coupled modeling of design and investment parameters for optimal operation of methane bioreactors: Attainable region concept approach. *Renewable Energy*. https://doi.org/10.1016/j.renene.2019.10.089
46. Fabrice Abunde Neba, Nana Y. Asiedu, John Morken, **Ahmad Addo**, Razak Seidu (2019). A novel simulation model, BK_BiogaSim for design of onsite anaerobic digesters using two-stage biochemical kinetics: Codigestion of blackwater and organic waste. *Scientific African*. https://doi.org/10.1016/j.sciaf.2019.e00233
47. F. Abunde Neba, Nana Y. Asiedu, **Ahmad Addo**, Razak Seidu (2019). Attainable regions and fuzzy multi-criteria decisions: Modeling a novel configuration of methane bioreactor using experimental limits of operation. *Bioresource Technology*. https://doi.org/10.1016/j.biortech.2019.122273
48. F. Abunde Neba, Nana Y. Asiedu, **Ahmad Addo**, John Morken, Stein W. Østerhus, Razak Seidu (2019). Biodigester rapid analysis and design system (B-RADeS): A candidate attainable region-based simulator for the synthesis of biogas reactor structures. *Computers & Chemical Engineering*. https://doi.org/10.1016/j.compchemeng.2019.106607
49. Nancy Nelly Idun-Acquah, **Ahmad Addo**, Ato Bart-Plange (2019). Effect of Soaking Temperature on Water Absorption Characteristics of Selected Ghanaian Cowpea Varieties. *Open Journal of Applied Sciences*. https://doi.org/10.4236/ojapps.2019.99060
50. Abiodun Suleiman Momodu, **Ahmad Addo** (2019). Global CO2 emission reduction policies and West African electricity system: Case for transformational access. *AAS Open Research*. https://doi.org/10.12688/aasopenres.12915.1
51. Nana Y. Asiedu, Fabrice Abunde Neba, **Ahmad Addo** (2019). Modeling the attainable regions for catalytic oxidation of renewable biomass to specialty chemicals: Waste biomass to carboxylic acids. *South African Journal of Chemical Engineering*. https://doi.org/10.1016/j.sajce.2019.07.003
52. Neba Fabrice Abunde, Nana Yaw Asiedu, **Ahmad Addo** (2019). Modeling, simulation and optimal control strategy for batch fermentation processes. *International Journal of Industrial Chemistry*. https://doi.org/10.1007/s40090-019-0172-9
53. F. Abunde Neba, Nana Y. Asiedu, **Ahmad Addo**, John Morken, Stein W. Østerhus, Razak Seidu (2019). Simulation of two-dimensional attainable regions and its application to model digester structures for maximum stability of anaerobic treatment process. *Water Research*. https://doi.org/10.1016/j.watres.2019.114891
54. F. Abunde Neba, Nana Y. Asiedu, **Ahmad Addo**, John Morken, Stein W. Østerhus, Razak Seidu (2019). Use of attainable regions for synthesis and optimization of multistage anaerobic digesters. *Applied Energy*. https://doi.org/10.1016/j.apenergy.2019.03.095
55. **A Addo**, KA Dzisi (2018). 17. Determining the Efficiency of the Government of Ghana's Network of Grain Storage Facilities. *West African Journal of Applied Ecology*. https://www.ajol.info/index.php/wajae/article/download/182522/171899
56. Akowuha, Joseph A., **Addo, Ahmad**, Bart-Plange, Ato (2018). Assessment of a mobile solar biomass hybrid dryer for insect disinfestation in dried maize grains. *DOAJ (DOAJ: Directory of Open Access Journals)*. https://doi.org/10.5073/jka.2018.463.075
57. Shadrack Kwadwo Amponsah, **Ahmad Addo**, Komla Dzisi, Bright Asante, Daniel Afona (2018). Assessment of rice farmers' knowledge and perception of harvest and postharvest losses in Ghana. *Cogent Food & Agriculture*. https://doi.org/10.1080/23311932.2018.1471782
58. E. Essien, K.A. Dzisi, **Ahmad Addo** (2018). Decision support system for designing sustainable multi-stakeholder networks of grain storage facilities in developing countries. *Computers and Electronics in Agriculture*. https://doi.org/10.1016/j.compag.2018.02.019

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60. E.O. Diemuodeke, **A. Addo**, C.O.C. Oko, Y. Mulugetta, M.M. Ojapah (2018). Optimal mapping of hybrid renewable energy systems for locations using multi-criteria decision-making algorithm. *Renewable Energy*. https://doi.org/10.1016/j.renene.2018.11.055

61. AGYEI TA, **Addo A** (2018). Particles Size as Feed Quality Parameter in Ghana - A Case Study of Dormaa Municipality. *DOAJ (DOAJ: Directory of Open Access Journals)*. https://doi.org/10.22069/psj.2018.15159.1338

62. **A Addo** (2018). Present status and future prospects of agricultural machinery industry in Ghana. *AMA, Agricultural Mechanization in Asia, Africa and Latin America*. https://www.academia.edu/download/61791898/AddoandAmponsah201820200115-114432-mr6iuy.pdf

63. **A Addo** (2018). Review of various harvesting options for cassava. *Cassava; Waisundara, VY, Ed.; IntechOpen: London, UK*. https://books.google.com/books?hl=en&lr=&id=zmqQDwAAQBAJ&oi=fnd&pg=PA291&dq=info:pr8uu8ReUr0J:scholar.google.com&ots=3h94Urs3qb&sig=VBN931U2tyMWPHzzekKEgS9BUT8

64. Shadrack Kwadwo Amponsah, **Ahmad Addo**, Komla Dzisi, Jean Moreira, Sali Atanga Ndindeng (2017). Comparative evaluation of mechanised and manual threshing options for Amankwatia and AGRA rice varieties in Ghana. *Journal of Agricultural Engineering*. https://doi.org/10.4081/jae.2017.684

65. **A Addo**, K Dzisi (2017). Development of a yam harvester using finite element method. *Int. J. Mod. Stud. Mech. Eng*. https://www.researchgate.net/profile/Ahmad-Addo/publication/315755640_Development_of_a_Yam_Harvester_using_Finite_Element_Method/links/58e2537da6fdcc41bf98d2b9/Development-of-a-Yam-Harvester-using-Finite-Element-Method.pdf

66. E. O. Diemuodeke, **A. Addo**, I. Dabipi-Kalio, C. O. C. Oko, Y. Mulugetta (2017). Domestic energy demand assessment of coastline rural communities with solar electrification. *Energy and Policy Research*. https://doi.org/10.1080/23815639.2017.1280431

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71. Neba F. Abunde, N. Asiedu, **Ahmad Addo** (2016). Dynamics of inhibition patterns during fermentation processes-Zea Mays and Sorghum Bicolor case study. *International Journal of Industrial Chemistry*. https://doi.org/10.1007/s40090-016-0105-9

72. Seweh, E. A, Apuri, S., Darko, J. O., **Addo, A.**, Asagadunga, P. A., Agyegelone, S. D. (2016). Effect of Moisture on Some Physical Properties of Shea (Vitellaria Paradoxa L) Kernels. *Zenodo (CERN European Organization for Nuclear Research)*. https://doi.org/10.5281/zenodo.21599555

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74. Nana Y. Asiedu, Neba F. Abunde, **Ahmad Addo** (2016). Modeling and Simulation of Substrate and Product

Inhibitions of Fermentation of Cassava (Manihot Esculenta) Extract. *Industrial Biotechnology*. https://doi.org/10.1089/ind.2016.0001

75. E. O. Diemuodeke, S. Hamilton, **A. Addo** (2016). Multi-criteria assessment of hybrid renewable energy systems for Nigeria's coastline communities. *Energy Sustainability and Society*. https://doi.org/10.1186/s13705-016-0092-x

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