

PROFESSOR GIKURU MWITHIGA

Name: Prof. Gikuru Mwithiga

Title/Qualification: PhD Position: Professor

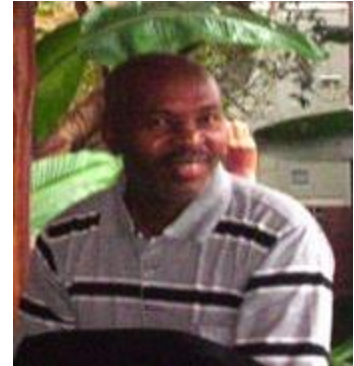
Department: Agricultural Resource Management

School: Agriculture

Area of Specialization: Food Engineering and Agro-processing

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Short Biography

Professor Mwithiga has a BSc, MSc and PhD in Agricultural engineering. He has been a university lecturer since 1988 and has previously worked in Jomo Kenyatta University of Agriculture and Technology, the University of Botswana and the University of KwaZulu-Natal. He has also supervised students at undergraduate level as well as postgraduate level up to the post-doctoral level in devices research areas of Bio-resource Engineering.

Research Interests

Prof Mwithiga is interested in all food engineering areas of research. He is also interested in environmental aspects of agricultural production with specific reference to renewable energy and agricultural resources. He is currently supervising three PhD students and two MSc students.

Please visit my Google scholar site at

<https://scholar.google.co.za/citations?user=vK1-DM0AAAAJ&hl=en>

Or my Research gate site at

http://www.researchgate.net/profile/Gikuru_Mwithiga

Publications in Journals

1. **Mwithiga, G.**, Maina, S., Muturi, P., & Gitari, J. (2024). Lemongrass (*Cymbopogon flexuosus*) growth rate, essential oil yield and composition as influenced by different soil conditioners under two watering regimes. *Heliyon*.
2. Njiru, L., Yegon, R., **Mwithiga, G.**, Micheni, A., Gitari, J., & Mairura, F. (2023) Restoring Soil Nutrient Stocks Using Local Inputs, Tillage and Sorghum-Green Gram Intercropping Strategies for Drylands in Eastern Kenya. *Tillage and Sorghum-Green Gram Intercropping Strategies for Drylands in Eastern Kenya*.
3. **Mwithiga, G.**, Maina, S., Muturi, P., & Gitari, J. (2022). Lemongrass (*Cymbopogon flexuosus*) agronomic traits, oil yield and oil quality under different agro-ecological zones. *Journal of Agriculture and Food Research*, 100422.
4. **Mwithiga, G.**, Maina, S., Gitari, J., & Muturi, P. (2022). Rosemary (*Rosmarinus officinalis L.*) growth rate, oil yield and oil quality under differing soil amendments. *Heliyon*, 8(4), e09277.
5. Ndung'u, P. W., **Mwithiga, G.**, Onyari, C. N., Muriithi, G., & Mukono, S. T. (2020). Evaluating the surface functional groups on banana leaf petioles and the resultant biochar for potential adsorbance. *Journal of Materials and Environmental Sciences*, 11(2), 255-261
6. **Mwithiga G** and Cherono K. (2019) Drying Kinetics of Biltong under Infrared and Convective Hot-Air Conditions. *Journal of Scientific and Engineering Research*, 5(9):178-186
7. KM Mkhathini, LS Magwaza, TS Workneh, **G Mwithiga**. (2018). Effects of relative humidity and temperature on small scale peach fruit drying using a tunnel solar dryer: A case study of peach fruit produced by small scale farmers in the of Impendle Local Municipality. *South African Journal of Agricultural Extension*
8. KM Mkhathini, LS Magwaza, TS Workneh, **G Mwithiga**. (2017) Determinations of physical and chemical properties of KwaZulu-Natal's household white peach 'landrace' in relation to extension services-a case study of Impendle Local Municipality. *South African Journal of Agricultural Extension*
9. Cherono K., **Mwithiga G.**, Schmidt S. (2016) Infrared drying as a potential alternative to convective drying for biltong production. *Italian Journal of food safety*, 5(3)

10. El-Mesiry H.S. and **Mwithiga G (2015)** Performance of a Convective, infrared and Combined Infrared- convective Heated Conveyor-belt Dryer. *Journal of Food Science and Technology*, DOI 10.1007/s13197-014-1347-1, 52 pp 2721-2730.
11. EL-Mesery, HS, **Mwithiga, G..** (2014) Mathematical Modelling of Thin Layer Drying Kinetics of Onion Slices Under Hot-air Convection, Infrared Radiation and Combined Infrared-Convection Drying. *Advances in Environmental Biology*, 8(20) Special 2014, Pages: 1-19
12. EL-Mesery HS, **Mwithiga, G.** (2014) Specific Energy Consumption of Onion Slices During Hot-air Convection, Infrared Radiation and Combined Infrared-Convection Drying *Journal of Applied Science and Agriculture*. 9(20) Special 2014, Pages: 13-22, ISSN 1816-9112
13. El-Mesiry H.S. and **Mwithiga G** (2014) Performance of a Convective, infrared and Combined Infrared- convective Heated Conveyor-belt Dryer. *Journal of Food Science and Technology*, DOI 10.1007/s13197-014-1347-1
14. **Mwithiga G.**, Magama P. and Hlophe M. (2013). Humidity control systems for wine maturation structures. *Advanced Materials Research* Vol. 824 (2013) pp 301-310 (2013) Trans Tech Publications, Switzerland doi:10.4028/www.scientific.net/AMR.824.301.
15. **Mwithiga G.** (2013). The potential for second generation bio-ethanol production from agro-industrial waste in South Africa. *African Journal of biotechnology*, 12(9):871-879. Available online at <http://www.academicjournals.org/AJB>, DOI: 10.5897/AJB12.305, ISSN 1684–5315.
16. El-Mesiry H.S. and **Mwithiga G.** (2012). The drying of onion slices in two types of hot-air convective dryers. *African Journal of Agricultural Research*. 7(30): 4284-4296, DOI: 10.5897/AJAR11.2065, ISSN 1991-637X.
17. El-Mesery, H.S. and **Mwithiga, G.** (2012). Comparison of a gas fired hot-air dryer with an electrically heated hot-air dryer in terms of drying process, energy consumption and quality of dried onion slices. *African journal of agricultural research*. 7(31): 4440-4452, DOI: 10.5897/AJAR12.614, ISSN 1991-637X.
18. **Mwithiga, G.**, Mazwiduma, P.J. and Tsopito, C.M. (2012). Alternative methods of harvesting and storage of grass biomass in a semi-arid region. *African journal of agricultural research*, 7(14): 2166-2173, DOI: 10.5897/AJAR11.1517.

19. **Mwithiga, G.** and Mwangi, S.G. (2009). Analysis of fish fillet drying rates under three solar energy drying systems. . In *Advances in Materials and Systems Technologies* vols. 62-64 pp518-524, Trans Tech Publications, Switzerland.
20. **Mwithiga, G.** and Fondo, E.C. (2009). Mechanical expression of oil from grated and preheated coconut meat. *Botswana Journal of agriculture and applied sciences.* 5(1):101-106.
21. **Mwithiga, G.** and Kirui, A.C. (2007). Potential of Nightsky Nocturnal Radiative Cooling as a Fresh Produce Preservation Method. In *Advances in Materials and Systems Technologies* ISBN / ISBN-13: 0-87849-450-2 / 978-0-87849-450-7, Vol 18-19:325-330. Trans Tech Publications, Switzerland.
22. **Mwithiga, G.** and Moriasi, L. (2007). A study of yield characteristics during mechanical oil extraction from preheated and ground soybeans. *Journal of Applied Sciences Research.* 3(10): 1146-1151.
23. **Mwithiga, G** and V.K. Jindal. (2007). Changes in properties of coffee brew due to roasting. *World Applied Sciences Journal.* 2(5):527-535.
Mwithiga, G., Mukolwe, M.I., Shitanda, D. and Karanja, P.N. (2007). Evaluation of the effect of ripening on the sensory quality and properties of tamarilo (*Cyphomadra betaceae*) fruits. *Journal of Food Engineering,* 79(1): 117-123.
24. **Mwithiga, G** and Mwanja, J.M. (2006). Influence of sial-fibre content on the tensile and bending strength of sisal-epoxy composites. *Journal of engineering and applied sciences.* 1(4):508-513, 2006.
25. **Mwi, Gthiga.** and Sifuna, M.M. (2006). Effect of moisture content on the physical properties of three varieties of sorghum seeds. *Journal of food engineering.* 75(4):480-486.
26. **Mwithiga, G.** and Kigo, S.N. (2006). Performance of a solar dryer with limited sun tracking capability. *Journal of food engineering.* 74(2):247-252.
27. **Mwithiga, G.** and Olwal, J.O. (2005). The drying kinetics of kale (*Brassica oleracea*) in a convective hot air dryer. *Journal of food engineering.* 71(4):373-378**.
28. **Mwithiga, G** and V.K. Jindal. (2004). Coffee drying in a rotary conduction-type heating unit. *Journal of Food Process Engineering.* 27(2):143-157.
29. **Mwithiga, G** and V.K. Jindal. (2003). Physical changes during coffee roasting in rotary conduction-type heating units. *Journal of Food Process Engineering.* 26(6) pp.543-558.

Presentation of Papers at Academic and Professional Conferences

1. **Mwithiga, G.** 1987. Soil conservation methods: National soil conservation workshop, outspan Hotel, Nyeri, November 1987
2. **Mwithiga, G.** 1988. Tractor testing procedures: Farm mechanization workshop, Branchest Hotel, Limuru, November 1988.
3. Mwaura, E.N. and **G. Mwithiga.** 1990. A thin layer drying equation for pyrethrum flowers: Proceedings of the 1990 Kenya Society of Agricultural Engineers (KSAE) annual seminar, Kabete Campus, University of Nairobi.
4. Mwaura, E.N. and **G. Mwithiga.** 1991. Prediction of pyrethrin loss during drying of pyrethrum flowers, Proceedings of the 1991 Kenya Society of Agricultural Engineers (KSAE) annual seminar, JKUAT.
5. **Mwithiga, G.** and C. I. Nindo. 1992. Review of drying and milling processes for increased head rice yields, Proceedings of the Mechanization of rice farming in Kenya seminar, JKUCAT.
6. **Mwithiga, G.** and V.K. Jindal. 1997. Coffee drying in a rotary conduction-type heating unit; Proceedings of the XXXII annual convention of Indian Society of Agricultural Engineers, Punjab Agricultural University, Ludhiana - 141 004.*
7. **Mwithiga, Gikuru** and V.K. Jindal. 2003. Modeling coffee drying using product time-temperature history. Proceedings of the 3rd Asia-Pacific Drying Conference edited by Jindal et al., (Bangkok, Thailand, 1-3 September 2003), Asian Institute of Technology, Bangkok, Thailand, pp. 427-436.*
8. **Mwithiga, G.** and Kirui, A.C. (2006). Potential storage of Nocturnal radiative energy for preservation of fresh produce. International Conference on Engineering Research & Development: Impact on Industry (ICER&D 2006), held on 5-7 Sep 2006, University of Benin, Nigeria.*
9. **Mwithiga, G.** and Mwangi, S.G. (2008). Analysis of fish fillet drying rates under three solar energy drying systems. International Conference on Engineering Research & Development: Innovation (ICER&D 2008), held on 15-17 April 2008, University of Benin, Nigeria.*

10. Potential for liquid bio-fuel production in Southern Africa. International Conference on Engineering Research & Development: Impact on Industry (ICER&D 2010), held on 7-10 Sep 2010, University of Benin, Nigeria.*

Books/Book Chapters Published

1. Mwithiga, G. and Nindo, C.I. (2011). Infrared Drying. In Ed. Zhongli, Pan and Griffiths Gregory Atungulu (2011) Infrared Heating of Food and Agricultural Processing, Taylor and Francis Group, LLC, isbn/9781420090970.
2. Mwithiga, G. (2007). Research Trends in Modeling, Optimization and Control of the Drying Operation. In Food Engineering Research Developments, ISBN: 1-60021-906-3, Edited by Klening, T.P. Nova Science Publishers, USA, pp. 133-166.