

DR. JUSTIN NYAGA

Name: Dr. Justin Nyaga

Title/Qualification: PHD

Position: HOD, Lecturer

Department: Biological Sciences

School: Pure and Applied Sciences
(SPAS)



Short Biography

Dr. Justin Nyaga is a Lecturer and Head of Department, University of Embu, Kenya. He is also a Visiting Scholar, University of Colorado at Boulder, CO, USA. Mr. Nyaga has also been a Research Scientist at the South Africa National Biodiversity Institute (SANBI) and a Programme Officer, Tropical Biology Association/East Africa Natural History Society.

Dr. Nyaga has served as a Programme Manager, Volunteers for Africa (VFA) Organization and as a Consultant /E.I.A/E.A Expert, Resource Planning Consultants (Repcon Associates). He has also served as an Evaluation and monitoring officer, Environmental Friendly Services. Dr. Nyaga holds a Ph.D. in Botany from the University of Cape Town and an MSc. in Biodiversity and Conservation Biology from the University of the Western Cape, South Africa.

Research Interests

- Plant Ecophysiology,
- Nutrient cycling
- Climate change
- Bio-adaptation

Publications in Scientific journals

1. Koskei EC., Kotut K., **Nyaga J.** & Oduor SO., (2019). Temporal variation in physico-chemical characteristics, phytoplankton composition and biomass in Lake Solai, Kenya. *International Journal of Aquatic Science*. Vol 10 issue 2, 101-111.
2. Onipchenko VG., Kopylova NA., Kipkeev AM., Elumeeva TG., Azovsky A., Dudov SV., & **Nyaga JM.** (2019). Low floristic richness of afro-alpine vegetation of Mount Kenya is related to its small area. *Alpine Botany*. <https://doi.org/10.1007/s00035-019-00229-z>
3. Namu J., A. Alakonya, H. Karuri, **J. Nyaga**, J. Masanga and E. Njeri (2019). Response of Selected Kenyan Rice Cultivars to Infection by Root Knot Nematode (*Meloidogyne*

incognita). *Journal of Crop Science and Biotechnology* 22: 47-54.

<https://doi.org/10.1007/s12892-017-0101-0>.

4. Namu J., H. Karuri, A. Alakonya, **Nyaga, J.M**, and E. Njeri (2018). Distribution of parasitic nematodes in Kenyan rice fields and their relation to edaphic factors, rainfall and temperature. *Tropical Plant Pathology* <https://doi.org/10.1007/s40858-017-0194-9>
5. **Nyaga, J.M**, Neff, J.C, Cramer, M.D. 2015. The Contribution of Occult Precipitation to Nutrient Deposition on the West Coast of South Africa. *PLoS ONE* 10(5): e0126225. doi:10.1371/journal.pone.0126225
6. **Nyaga, J.M**, Cramer, M.D, Neff, J.C. 2013. Nutritional contributions of marine aerosol deposition to coastal strandveld fynbos in west coast South Africa. *Atmospheric Environment* 81, 625-632
7. Skelton, R.P, Midgley, J.J, **Nyaga, J.M**, Johnson, S.D, Cramer, M. D. 2012. Is leaf pubescence of Cape Proteaceae a xeromorphic or radiation-protective trait? *Australian Journal of Botany*, 60, 104-113
8. Musil, C, **Nyaga, J.M**, Maphangwa, K, Raitt, L. 2010. Responses of dwarf succulent plants, lichens, and soils to experimental climate warming in an arid South African ecosystem. In: Schmiechel, U., Jürgens, N. [Eds.]: *Biodiversity in southern Africa. Volume 2: Patterns and processes at regional scale*: pp. 246-250, Klaus Hess Publishers, Göttingen & Windhoek.

Presentations At Scientific Meetings

1. **Nyaga, J.M**, J.C, Cramer, M.D, Ripley, B. 2015. The role of transpiration-driven mass-flow on growth and nutrient delivery to roots of C₃ and C₄ crops, and consequences of changing atmospheric CO₂ concentration. Oral presentation. Climate Impacts Research Capacity and Learning Enhancement workshop, 2015. Nairobi, Kenya. 4 – 8 February 2015.
2. **Nyaga, J.M**, Musil, C. 2010. A comparison of soil CO₂ effluxes predicted by mechanistic and statistical models in an arid South African ecosystem. Oral presentation. The International Conference on Climate, Sustainability and Development in Semi-Arid Regions, 2010. Nairobi, Kenya. 8 – 12 June 2010.
3. **Nyaga, J.M**, Musil, C, Raitt, L. 2009. Empirical and theoretical based model predictions of respiration in different soils of an arid South African ecosystem: impact of climate warming. Poster presentation. The Diversitas International Conference 2009. Cape Town, South Africa. 14-16 October 2009

4. **Nyaga, J.M.**, Musil, C. Raitt, L. 2009. A comparison of empirical and theoretical based model predictions of CO₂ efflux in different soils of an arid South African ecosystem. Oral presentation. The Arid Zone Forum 2009. Graaff-Reinet (Eastern Cape, South Africa). 5 - 8 October 2009.
5. **Nyaga, J.M.** 2009. Emerging and feasible technologies for carbon sequestration. Oral presentation. Emerging Technologies Workshop. Amanzintaba resort, Bronchospruit, Gauteng-South Africa. 19 - 20 September, 2009

6. **Nyaga, J.M,**Musil, C. Raitt, L. 2009. A comparison of empirical and theoretical based soil respiration models.Poster presentation.The Fynbos forum 2009.Bredasdorp (Western Cape-South Africa).4th - 7th August 2009.
7. **Nyaga, J.M,**Musil, C. Raitt, L. 2009. Estimating soil respiration responses to climate warming in an arid South African ecosystem. Oral presentation.5th EGU Alexander von Humboldt International Conference. University of Cape Town, South Africa. 12th - 16th January 2009.
8. **Nyaga, J.M,**Musil, C. Raitt, L. 2008. Effects of experimental climate manipulations on soil and vegetation dynamics in the South African succulent karoo biome. Oral and Poster presentations. Biota International Congress. Spier, Stellenbosch. 29th September to 3rd October 2008
9. **Nyaga, J.M,**Musil, C. Raitt, L. 2008. Impacts of fog and dew on soil moisture, respiration and nutrients recycling in the succulent Karoo biome, South Africa. Poster presentation. 51st Annual International Association of Vegetation Science (IAVS) Symposium. Stellenbosch University, South Africa. 7th to 12th September 2008
10. **Nyaga, J.M,**Musil, C. Raitt, L. 2008. The role of fog and dew as moisture sources on soil respiration and nutrients recycling in the succulent Karoo biome. Poster presentation. The Interface (Fynbos forum and Arid zone forum) 2008. Oudtshoorn (Western Cape-south Africa). 3rd - 7th August 2008

Post graduate students under supervision

1. Samuel John Namu. PhD Student.

Research topic: Assessment of plant parasitic nematodes associated with Kenyan rice and immunopathological response of rice genotypes to Root Knot Nematode infection.

University of registration: University of Embu.

2. Moses Kathuri Njeru. PhD Student.

Research topic: Sustainable agricultural practices and factors influencing their adoption among households in Embu county, Kenya.

University of registration:Chuka University.

3. Martha Kamunyu. MSc Student.

Research topic:The effects of anthropogenic activities on land degradation in Turima location of Tharaka South district in TharakaNithi County.

University of registration:Chuka University.

4. Julius G. MwebiaMugambi. MSc Student.

Research topic:The effect of anthropogenic activities on the soil characteristics in Meru south district and their mitigation strategies.

University of registration:Chuka University.

5. Sammy MwanziaMusyoka. MSc Student.

Research topic:Composition, Growth rate and oil production potential of Phytoplankton in lake Naivasha and water reservoirs in University of Embu.

University of registration:University of Embu.

6. George Ogunda. MSc Student.

Research topic:The efficacy of municipal sewerage treatment in purification of domestic effluent at Kipevu in Mombasa.

University of registration:Chuka University.

7. Quentin Andrew MwakilangaNgati. MSc Student.

Research topic:Non point sources of river pollution in Upper Tanariver catchment: a case study of river Ruringazi, Embu county.

University of Registration:Chuka University.

8. Samuel Kivuti Nyaga. MSc Student.

Research topic: Effects of climate change adaptation on food security in Mavuria ward, Embu County in Kenya.

University of registration:Chuka University.