

DR. PAUL NJIRUH NTHAKANIO

Name: Prof. Paul Njiruh Nthakanio

Title/Qualification: Associate Prof.

Position: Registrar- (Planning, Administration and Finance)

Department: Agricultural Resource Management

Area of Specialization: Genetics, breeding, Molecular Biology /
Biotechnology

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Short Biography

Dr Paul Njiruh Nthakanio is the Registrar in charge of Planning, Administration and Finance. He joined University of Embu in year 2013 where he served as Chairman of the Department of Agricultural Resource Management (ARM) until the appointment as a Registrar. Previously, he worked at Technical University of Kenya where he taught and researched in the Department of Biochemistry and Biotechnology.

Dr. Nthakanio holds a PhD in Genetics and Plant Breeding and has a strong passion for Biotechnology. Out of this passion, he initiated teaching of Biochemistry and Biotechnology programmes at the Technical University of Kenya (former Kenya Polytechnic). He has attracted some research grants and supervised a number of Masters and PhD students. His expertise in Biotechnology and Molecular Biology has lead him to author of a number of books in this area. In addition, he is a consultant in Biotechnology and Molecular Biology matters with various governmental and non-governmental organizations.

Since year 2004, he has participated in championing the course of Biotechnology and actively participated in events leading to enactment of Biosafety act, 2012. Additionally, he worked with other stakeholders in drafting of Bioscience Bill. He has also, participated in other government activities such as compiling government paper on natural capital development that time under the Ministry of Environment.

In the East African Region, he has been involved in project evaluation for the Tanzanian Government among other undertakings.

Research Interests

Breeding of hybrid rice through Genetic Emasculation and Gene silencing;

Publications in Journals

1. Ngigi, D.M., Githui E.K., Aman, R.A., Wanjala, F.M., Stella, R.K, **Njiruh, P.N.**, Nguu, E.K. (2018) Populations of *Biomphalaria* spp. Snails Isolates in Kenya Show Variable Resistance to Schistosome Infection. *Res Rev Biosci.* 2018;13(3):144.

2. Ojola, P. O., Nyaboga, E. N., **Njiruh P. N.**, Orinda, G. (2018) Overexpression of rice thaumatin-like protein (*Ostlp*) gene in transgenic cassava results in enhanced tolerance to *Colletotrichum gloeosporioides* f. sp. *manihotis*. *Journal of Genetic Engineering and Biotechnology*, <https://doi.org/10.1016/j.jgeb.2017.12.002>
3. **Njiruh P. N.**, & Wakhungu, J. (2017) Emergence of Bio/Agro-Terrorism in Kenya. *Annual Research & Review in Biology*. 15(6): 1-12, 2017; Article no.ARRB.34167 ISSN: 2347-565X, NLM ID: 101632869
4. **Njiruh P. N.**, Xue Qingzhong (2014) Demarcating day-light-length from temperature effects in PGMS rice using back tracking method. *International Journal of Agronomy and Agricultural Research (IJAAR)*. Vol. 5, No. 5, p. 40-52
5. **Njiruh P. N.**, Kanya James Ireri, Kimani John Munji, Wanjogu Rapheal Kinyanjui Kariuki Simon Njau (2013). Segregation distortion of anthocyanin morphological marker in F2 population of cross between Basmati and Environment Genic Male Sterile Rice lines. *International Journal of Agronomy and Agricultural Research (IJAAR)*, Vol. 3, No. 12, p. 43-52, 2013.
6. **Njiruh P. N.**, Kanya James Ireri, Kimani John Munji, Wajogu Rapheal Kinyanjui (2013) Production of hybrid basmati rice in kenya: progress and challenges. *International Journal of Innovations in Bio-Sciences*. Vol. 3(4): 115-124.
Njiruh Paul Nthakanio and Xue Qingzhong (2013) Tracking the expression of photosensitive genic male sterility genes in rice. *African Journal of Biotechnology*. Vol.12(47) 6583-6590.
7. Njoroge S, Muigai A.W.T, **Njiruh P.N**, Kariuki S. (2013) Molecular Characterisation and Antimicrobial Resistance Patterns of Escherichia coli Isolates from Goats Slaughtered in parts of Kenya. *East African Medical Journal*. Vol. No. 1. 1-11.
8. Kanya James Ireri, **Njiruh P. N.**, Kimani John Munji, Wajogu Rapheal Kinyanjui, Kariuki Simon Njau (2013) Evaluation of photoperiod and thermosensitive genic male sterile lines for hybrid rice seeds production in Kenya. *International Journal of Agronomy and Agricultural Research (IJAAR)*. Vol. 3, No. 2, p. 21-39.
9. Maina S , Runo S M, Miano, D W, **Njiruh P. N.**, John I, E Mbogo, Monjero E. (2012) Partial nucleotide sequences of sweet potato leaf curl virus occurring in Kenya and its phylogenetic relationship with other members of begomoviruses. Proceedings of the 2012 JKUAT Scientific,

Technological and Industrialization Conference, Science Technology and Innovation for sustainable development 15th – 16th November 2012. Pg. 9-17, JKUAT, Nairobi, Kenya

10. **Njiruh P. N.** and Xue Qingzhong (2011) Programmed cell death-like behavior in photoperiod-sensitive genic male sterile (PGMS) rice. *African Journal of Biotechnology* Vol. 10(16), pp. 3027-3034.
11. Laura Nyawira Wangai, Muriira Geoffrey Karau , **Njiruh P. N.**, Omar Sabah ,Francis Thuo Kimani, Gabriel Magoma, Njagi Kiambo (2011) Sensitivity of Microscopy Compared to Molecular diagnosis of *P. falciparum*: implications on Malaria Treatment in Epidemic areas in Kenya. *Afr. J. Infect. Dis.* (2011) 5(1):1 6.

Presentation of Papers at Academic and Professional Conferences

1. **Njiruh Paul Nthakanio** (2014) Biotechnology and Genetic engineering- a key to bio-economy. 3rd National Biosafety Conference, 11th – 14th August, 2014. Kenyatta International Conference Centre, Nairobi, Kenya. page 32.
2. Kariuki Njau Simon **Njiruh Paul Nthakanio** (2014) Complete male sterility induction in PGMS/TGMS- A new opening to use of Hybrid rice seed Technology in Kenya, PG 30. The 2nd Technical University of Kenya Science, Technology and Innovation Research Conference, June 24th -27th, 2014, KICD, Nnairobi
Ngie Mwendu and Njiruh Paul (2014) Effects of leaf plucking frequency and spacing on small sugar pumpkin production , Pg.24. The 2nd Technical University of Kenya Science, Technology and Innovation Research Conference, June 24th -27th, 2014, KICD, Nnairobi
3. **Njiruh Paul Nthakanio** (2014) Bio-economy and Industrialization, PG 5-6. The 2nd Technical University of Kenya Science, Technology and Innovation Research Conference, June 24th -27th, 2014, KICD, Nnairobi
4. **Njiruh Paul Nthakanio**, Kanya James Ireri, Kimani John Munji, Wanjogu Rapheal Kinyanjui (2014) Taking advantage of segregation distortion to increase variability in breeding. Production of super yielding hybrid basmati rice in Kenya: progress and challenges. (2014) Workshop for presentation of research findings and proposals under National Irrigation Board 4th to 5th July 2013. Kenya School of Monitory Studies, Nairobi, Kenya.
5. **Njiruh Paul Nthakanio**, Kanya James Ireri, Kimani John Munji, Wanjogu Rapheal Kinyanjui (2014) Breeding hybrid rice using P/TGMS in the tropics- from greenhouse to the field. Workshop for presentation

of research findings and proposals under National Irrigation Board 4th to 5th July 2014. Kenya School of Monitory Studies, Nairobi, Kenya.

6. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John Munji, Wanjogu Rapheal Kinyanjui (2014) Use of cold growth conditions to emasculate male gametes in rice. 8th Egerton University International Conference, Theme: Innovative Research for Global Development 26th – 28th March 2014, Faculty of Education Complex, Egerton University, Njoro, Kenya
7. **Njiruh Paul Nthakanio** and Xue Qingzhong (2013) Tracking the Expression of Photosensitive Genic Male Sterility Gene in Rice. University of Eldoret, First Interdisciplinary International Conference from 3rd to 5th September, 2013.
8. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John Munji ,Wajogu Raphael Kinyanjui (2013). Production of super yielding hybrid basmati rice in Kenya: progress and challenges. (2013) Workshop for presentation of research findings and proposals under National Irrigation Board 13th to 14th June 2013. Kenya School of Monitory Studies, Nairobi, Kenya.
9. **Njiruh Paul Nthakanio** (2013) Use of Breeding as a method of mitigating climate change on food security Environmental and Development Conference on; Linking Environmental Research to Kenya's Development Agenda and Vision 2030. Technical University of Kenya in Collaboration with Alexander Von Humboldt Siftung /Foundation Nairobi, Kenya 9th -12th April 2013.
10. Stephen Njoroge, Anne W. T. Muigai, **Paul N.Njiruh** and Sam Kariuki, (2013) Isolation, molecular characterization and antimicrobial resistance patterns of Escherichia coli isolates from Huruma & Kiserian goat in Kenya. Environmental and Development Conference on; Linking Environmental Research to Kenya's Development Agenda and Vision 2030. Technical University of Kenya in Collaboration with Alexander Von Humboldt Siftung / Foundation Nairobi, Kenya 9th -12th April 2013.
11. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John Munji ,Wajogu Raphael Kinyanjui, Kariuki Simon Njau, Ileri Frankline Kinyua. (2013). Progress and Challenges of Producing Super Yielding Hybrid Basmati Rice in Kenya. Science, Technology and Innovation for the realization of Kenya Vision 2030 and beyond, 2nd National Science, Technology and Innovation. Kenyatta International Conference Centre (KICC), Nairobi, Kenya. Pg.7

12. **Njiruh Paul Nthakanio** (2013). Use of rice breeding as a method of mitigating effects of climate change on food security. "Linking Environmental Research to Kenya's Development Agenda and Vision 2030". Humboldt Kolleg 2013 Nairobi, Kenya. Pg 7.
13. Maina S , Runo S M, Miano, D W, **Njiruh P N**, John I, E Mbogo, Monjero E. (2012) Partial nucleotide sequences of sweet potato leaf curl virus occurring in Kenya and its phylogenetic relationship with other members of begomoviruses. 7th JKUAT Scientific Conference 15th – 16th November 2012. JKUAT, Kenya
14. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John. Wanjogu Raphael (2012). High Temperature Compensation to Make Pgms Completely Sterile Under Short Day Length Growth Conditions. 3rd Kenya Rice Researchers Forum Symposium 28th June 2012, at KARI HQ 2012. Nairobi, Kenya. Pg.21
15. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John. Wanjogu Raphael (2012) Introduction of Hybrid Rice Seeds to Kenyan Farmer - A promising Reality. 13th KARI Biennial Scientific Conference and Exhibition of Innovations 22nd to 26th October 2012. KARI, Nairobi, Kenya
16. Maina S, Miano, DW, Runo SM, **Njiruh PN**, John I, Mbogo E, Monjero, Juma K (2012) Distribution of Sweet Potato Leaf Curl Virus in Kenya (2012) 13th KARI Biennial Scientific Conference and Exhibition of Innovations 22nd to 26th October 2012. KARI, Nairobi, Kenya
17. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John. Wanjogu Raphael (2012) Use of Anthocyanin Morphological Markers to select Hybrids from non-hybrids Basmati lines. 7TH Egerton University International Conference: Research and Expo Conference Programme, 26TH – 28TH September 2012. Nakuru, Kenya. Pg. 12.
18. Maina S, Miano, DW, Runo SM, **Njiruh PN**, John I, Mbogo E, Monjero, Juma K (2012) Detection of Begomoviruses infecting Sweet potato in Kenya by Polymerase Chain Reaction. Innovation systems and knowledge-based economy for national development conference : 7-11 may 2012: Kenyatta International Conference Centre (KICC). Pg42. Nairobi. Kenya.
19. **Njiruh Paul Nthakanio**, Kanya James Ileri, Kimani John Munji Wajogu Rapheal Kinyanju (2012) Establishing a "Microbial-plant" Interface as a means to control rice blast disease. "THE FUTURE OF BIODIVERSITY RESEARCH SCOPE, OPPORTUNITES, COLLABORATION, ACCESS AND SHARING BENEFITS". Humboldt Conference:17th to 20th July 2012.

20. **Njiruh PN**, Kanya JI, Kimani JM. Wajogu RK (2012) Adaptability of PGMS and TGMS rice lines for hybrid rice seed production in Kenya. Innovation systems and knowledge-based economy for national development conference: 7 - 11 may 2012: Kenyatta International Conference Centre (KICC). Nairobi. Kenya. Pg 34.
21. **Njiruh PN**, Kanya JI, Kimani JM. Wajogu RK (2012) High Temperature Compensation to Make PGMS Completely Sterile Under Short Day Length Growth Conditions. Kenya Rice research forum Second symposium. 29th February 2012 at Panafric Hotel. Nairobi, Kenya.
22. **Njiruh PN**, Kanya JI, Kimani JM. Wajogu RK (2011) Evaluation of Thermosensitive and Photosensitive Genic Male Sterile Rice lines for use in Hybrids Seed Production in Kenya. Workshop for presentation of research findings and proposals under National Irrigation Board held at Kenya School of Monetary Studies on 25th to 26th October 2011.
23. **Njiruh PN** (2009). THE CHALLENGES OF TEACHING TECHNOLOGY : A BARRIER TO VISION 2030. International Conference on Education in Kenyatta University Conference Centre, Nairobi Kenya, Organized by Kenyatta University/Syracuse University. 8th – 10th July 2009.
24. **Njiruh PN** and Xue QZ (2008) Programmed cell death-like behaviour in photoperiod –sensitive Genic Male Sterile (PGMS) rice. BIO-EARN/VICRES SCIENTIFIC CONFERENCE in Kampala, Uganda, 24th to 26th November 2008.

Books/Book Chapters Published

1. Nthakanio Paul Njiruh (2015) The Genetics of Molecular Biology: Notes. ISB. 978-3- 659-62806-Ed. IulianaOaserele Lambert Academic Publishers. Saarbrücken, Germany. **In press**
2. Nthakanio Paul Njiruh (2014) Biology of the Cell : Notes. ISB. 978-3-659-62806-1. Ed. LulianaOaserele Lambert Academic Publishers. Saarbrücken, Germany.