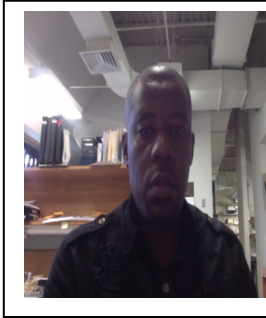


## Dr. John Vincent Omondi Muoma



**Senior Lecturer**  
**Department of Biological Sciences**  
**Faculty of Science**

My research work and interest is focused on using modern biology tools to develop new crop management systems to conserve and improve crop production. As a Genetic Engineer working on molecular platform, am using high through put molecular biology systems, to improve plant tolerance to adverse condition. In my PhD work, I introgressed drought tolerant genes in selected Maize lines to developed drought tolerant transgenic plants. As routine lab work, I have developed transformation protocols for selected germplasms tolerant to the arid regions. Am currently participating in five projects as Principal Investigator (PI) or Co-PI involved in i) *Agrobacterium tumefaciens* mediated introgression of drought tolerant gene into selected Kenyan maize lines ii) Development of regeneration protocols for important crops iii) regeneration of clean planting material through tissue culture iv) Molecular characterization/ profiling of rhizobium species found in western Kenya v) Determination of molecular identity of cowpeas found in the ECA region vi) Improvement of cropping system in maize and bean farms in western Kenya by improving soil quality and pest management vii) Sustainable use of organic waste from lake victoria to improve the livelihood of the community around lake victoria basin (LVB). I am also a member of the African Biotechnology Network and involved in exploring method of increasing acceptance in genetically improved food crops.

### Qualifications

Post Doctorate (2012) Fulbright Scholarship, Waksman Institute, University of New Jersey, US  
Doctor of Philosophy (2009) Molecular Biology/ Biotechnology (Rockefeller funded Sandwich Program between Kenyatta University and Iowa State University)  
Master of Science in Biotechnology, University of Mysore, India Government Scholarship, India  
Bachelor of Science, Botany, Zoology and Biochemistry, Kenya Government Scholarship, Dr. Ambedkar University, India

### Professional Memberships and Activities

International Exchange Alumni – US  
Africa Biotechnology Network (ABNETA)  
African Biotechnology Stakeholder Forum  
African Bioscience group

**Expertise:** Genetic Engineer with expertise in Maize Transformation/ Molecular Breeding

**Research Interests:** To improvement and develop new crop management systems so as to conserve and improve crop production.

#### **Publications/ Live Link**

1. Fanuel Kawaka, Mathews M. Dida, Peter A. Opala, Omwoyo Ombori, JohnMaingi, Newton Osoro, Morris Muthini, Alice Amoding, Dative Mukaminega, and **John Muoma (2014)** Symbiotic Efficiency of Native Rhizobia Nodulating Common Bean (*Phaseolus vulgaris* L.) in Soils of Western Kenya. *Hindawi Publishing Corporation International Scholarly Research Notices* Volume 2014, Article ID 258497, <http://dx.doi.org/10.1155/2014/258497>
2. Fanuel Kawaka\*, John Kimenju, Sheila A. Okoth, George Ayodo, Shelmith Mwaniki, **John Muoma** and George Orinda (2014) Effects of Soil Chemical Characteristics on the Occurrence of Entomopathogenic Nematodes. *British Journal of Applied Science & Technology* 4(16): 2333-2343 <http://www.sciencedomain.org/abstract.php?iid=492&id=5&aid=4281#.U1wAYDmXJdg>
3. A.K Osogo, **J. Muoma**, P. Nyamwamu, C.N. Omuse H. K. Were (2014) Occurrence and Distribution of Cassava Brown Streak Viruses in Western Kenya. *Journal of Agri-Food and Applied Sciences (JAAS)*, Volume 2, Issue 7. <http://www.abstract.xlibx.com/a-biology/102384-1-occurrence-and-distribution-cassava-brown-streak-viruses-wester.php>
4. **John Vincent Omondi Muoma**<sup>1\*</sup>, Omwoyo Ombori<sup>2</sup> Agrobacterium-Mediated Transformation of Selected Kenyan Maize (*Zea mays* L.) Genotypes by Introgression of Nicotiana Protein Kinase (npk1) to Enhance Drought Tolerance (2014) *American Journal of Plant Sciences*, 2014, 5, 863-883 <http://www.scirp.org/journal/ajps> <http://dx.doi.org/10.4236/ajps.2014.56100>
5. Victoria Naluyange, Dennis M.W. Ochieno, John M. Maingi, Omwoyo Ombori, Dative Mukaminega, Alice Amoding, Martins Odendo, Sheila A. Okoth, William A. Shivoga, **John V.O. Muoma (2014)** Compatibility of Rhizobium inoculant and water hyacinth compost formulations in Rosecoco bean and consequences on *Aphis fabae* and *Colletotrichum lindemuthianum* infestations. *Applied Soil Ecology*, 76 (2014) 68-77 <http://www.sciencedirect.com/science/article/pii/S0929139313003132>
6. Charles K. Kigen, Dennis, M. W. Ochieno, **John. O. Muoma**, William A. Shivoga, Martha Konje, Zedekiah Onyando, Benard C. Soi, Stanley M. Makindi, Philip M. Kisoyan and John M. Mironga (2014) Spatial Modeling of Sorghum (*Sorghum bicolor*) growing areas in Kenyan Arid and Semi-Arid Lands. *Remote Sensing* 66 (2014) 20674-20678 [http://www.elixirpublishers.com/index.php?route=articles/category&path=319\\_374&sort=a.author&order=ASC](http://www.elixirpublishers.com/index.php?route=articles/category&path=319_374&sort=a.author&order=ASC)

7. Morris Muthini<sup>1</sup>, John M. Maingi<sup>2</sup>, **John O. Muoma**<sup>3</sup>, Alice Amoding<sup>4</sup>, Dative Mukaminega<sup>5</sup>, Newton Osoro<sup>2</sup>, Allan Mgutu<sup>1</sup> and Omwoyo Ombori<sup>2\*</sup> (2014) Morphological Assessment and Effectiveness of Indigenous Rhizobia Isolates that Nodulate *P. vulgaris* in Water Hyacinth Compost Testing Field in Lake Victoria Basin. *British Journal of Applied Science & Technology* 4(5): 718-738  
[http://www.sciencedomain.org/abstract.php?iid=361&id=5&aid=2648#.U1v\\_GDmXJdg](http://www.sciencedomain.org/abstract.php?iid=361&id=5&aid=2648#.U1v_GDmXJdg)

9. Newton Osoro<sup>1</sup>, **John O. Muoma**<sup>2</sup>, Alice Amoding<sup>3</sup>, Dative Mukaminega<sup>4</sup>, Morris Muthini<sup>5</sup>, Omwoyo Ombori<sup>1</sup> and John M. Maingi<sup>1</sup> (2014) Effects of Water Hyacinth (*Eichhornia crassipes* [mart.] solms) Compost on Growth and Yield Parameters of Maize (*Zea mays*). *British Journal of Applied Science & Technology* 4(4): 617-633  
[http://www.sciencedomain.org/abstract.php?iid=319&id=5&aid=2534#.U1v\\_izmXJdg](http://www.sciencedomain.org/abstract.php?iid=319&id=5&aid=2534#.U1v_izmXJdg)

10. Omwoyo Ombori, **John Vincent Omondi Muoma** Jesse Machuka 2012 *Agrobacterium*-mediated genetic transformation of selected tropical inbred and hybrid maize (*Zea mays* L.) lines. *Plant Cell, Tissue & Organ Culture* DOI 10.1007/s11240-012-0247-1  
<http://www.bionity.com/en/publications/478937/agrobacterium-mediated-genetic-transformation-of-selected-tropical-inbred-and-hybrid-maize-zea-mays-l-lines.html>

11. **John O. Muoma**, Dennis M.W. Ochieno and Amos E. Alakonya Farmers in Sub-Saharan Africa cry for tightly closed ear drooping maize phenotypes *Maize Genetics Cooperation Newsletter vol 86 2012* [www.agron.missouri.edu/mnl/86/html/16muoma.htm](http://www.agron.missouri.edu/mnl/86/html/16muoma.htm)

12. J.F. Kawaka, G. O. Orinda, G. Ayodo, **J.O. Muoma**, S. W. Mwaniki, S.O. Okoth, J.W. Kimenju 2011. Impact of land use on the distribution and diversity of entomopathogenic nematodes (EPNs) in Embu and Taita districts, Kenya. *Journal of tropical and sub-tropical Agro-ecosystem* 13(2011):59-63  
<http://redalyc.uaemex.mx/src/inicio/ArtPdfRed.jsp?iCve=93916247008>

13. **John Muoma**, Omwoyo Ombori, Jesse Machuka (2011) Improvement in Inheritance of somatic embryogenesis and plantlet regeneration in tropical Maize lines from friable Callus Maize. *Genetics Cooperation Newsletter vol 85 2011* [www.agron.missouri.edu/mnl/85/HTML/32muoma.htm](http://www.agron.missouri.edu/mnl/85/HTML/32muoma.htm)

14. Muoma John, Muluvi Geoffrey, Machuka Jesse (2010). Review of the current status of molecular approaches for the management of drought stress in Sub-Saharan Africa. *Biotechnology* 9(4): 469-476  
<http://docsdrive.com/pdfs/ansinet/biotech/0000/21597-21597.pdf>

15. **Muoma John**, Muluvi Geoffrey, Machuka Jesse (2008). *In-vitro* regeneration of selected maize genotypes by organogenesis using shoot apices. *Biotechnology* 7(4): 732-738  
<http://docsdrive.com/pdfs/ansinet/biotech/2008/732-738.pdf>

#### **Book Edited**

Charles Mugoya, Yona Baguma, Robert kawuki, Martin Otim, Francis Wachira and Clet Wandigu (2013). Tissue culture, conservation Biotechnology, Virus indexing and seed systems of vegetative crops  
<http://www.asareca.org/sites/default/files/Tissue%20culture%20conservation%20biotechnology%20and%20seed%20systems.pdf>

**Current Teaching****Graduate courses**

Advanced Genetic Engineering  
Biotechnology in Crop protection Biosafety

**Undergraduate courses**

Introduction to Biotechnology  
Introduction to Molecular Biology  
Bioreactor  
Bio processing Engineering

**Contact Details**

**John V. Omondi Muoma**  
**Dept. of Biological Sciences,**  
**Masinde Muliro University of Science and Technology,**  
**P.O Box 190-50100,**  
**Kakamega,**  
**Telephone: 0722561115/0736561111**  
**Email: [jmuoma@mmust.ac.ke](mailto:jmuoma@mmust.ac.ke), [jmuoma@gmail.com](mailto:jmuoma@gmail.com)**