

CURRICULUM VITAE

A. **PERSONAL**

SURNAME: BURUCHARA

FORNAMES: ROBIN ARANI

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DATE BIRTH: 1954

B. **EDUCATION**

Doctor of Philosophy,(Plant Pathology):1979-1984

University of Nairobi, Kenya and Centro Internacional de Agricultura Tropical. Cali, Colombia
Thesis: Determination of pathogenic variability in *Phaeoisariopsis griseola* Sacc. and *Pseudomonas syringae* pv. *phaseolicola* on beans (*Phaseolus vulgaris* L.).

Master of Science,(Plant Pathology [Virology]): Sept 1977 - July 1979

University of Nairobi

Thesis: Identification of a severe strain of bean common mosaic virus in beans (*Phaseolus vulgaris* L.) in Kenya..

Bachelor of Science, (Agriculture [Honours]), Sept 1974 - July, 1977.

University of Nairobi.

GRANTS AND AWARDS

GTZ (DAAD) Postgraduate (MSc) Scholarship (1977-1979)

CIAT Visiting Research Fellowship (PhD) (1979-1980)

Ford Foundation Fellowship (PhD) (1980-1981)

Ford Foundation Travel grant (1983)

DANIDA Fellowship (1989)

C. SKILLS AND ABILITIES:

C-1. PLANT PATHOLOGY: Basic plant pathology techniques and concepts, Identification and characterization of fungi, bacterial and viral organisms using a variety of techniques, Maintaining fungal stock cultures, Searching for sources of resistance, Evaluating germplasm for resistance to plant pathogens, Day to day running of the laboratory, Data analysis and report writing, Designing and conducting laboratory and field experiments.

C-2. COMPUTER SKILLS: Knowledge of: several software and programmes, e.g. Microsoft Office (Office 97 package), Word Perfect, Lotus 1-2-3, Harvard Graphics, Dbase, MSTAT statistical analysis software, NTSYS, Internet mail and access software etc.

C-3. LANGUAGE SKILLS:

English: - Proficient in written and spoken

Spanish: - Good in spoken and written

French: - Good in spoken and fair in written.

D. PROFESSIONAL EXPERIENCE

D-1. RESEARCH EXPERIENCE

D-1.1. Senior Scientist and Regional Bean Pathologist, CIAT-Africa (July 1993 - present); Also Coordinator, Pan-Africa Bean Research Alliance (PABRA) (2002 – to date).

Conducting strategic research in support of and in collaboration with scientists in bean research networks in Eastern, Central and southern Africa on genetic diversity of important bean pathogens in Africa mainly angular leaf spot, root rots (*Pythium* spp and *Fusarium solani* in bean) and anthracnose using conventional and biotechnology tools. Developing IPM technologies for soilborne diseases of beans. Developing research methodologies in pathology research. Identifying new sources of resistance, supporting resistance development, seed health studies in seed system. Giving technical backstopping in bean pathology research conducted by the bean network partners in developing, adapting and transferring disease management technologies. Supporting development and adaptation of molecular diagnostic methods for bean disease pathogens and marker assisted selection (MAS) in bean genetic improvement. Currently coordinating research (project) funded by DFID, on epidemiology of root rots, that includes developing and using combination of conventional and molecular methods to quantify soil borne pathogens (*Pythium* and *Fusarium solani*). Also coordinating a project funded by Rockefeller on genetic improvement of common beans against *Pythium* root rot and angular leaf spot diseases; this includes understanding the diversity of the two pathogens in Africa using molecular tools and application of the latter (MAS) in varietal development, and supporting capacity development among bean network partners. Support development of biotechnology capacity and facility Kawanda Research Institute (Uganda) Facilitating links between network scientists and coordinating capacity development in pathology, biotechnology and supervising graduate student research. Developing project concepts on understanding and use of interactions between harmful and beneficial soil microbial populations to the benefit of food production.

D-1.2. Senior Research Fellow CIAT, Regional Bean Programme for Great Lakes Region (March, 1990 - June 30, 1993).

Conducted research using farmer participatory research to develop IPM of bean root rots both in Rwanda and western Kenya. Gave technical backstopping in pathology to network research in the Great Lakes Region and eastern Africa. Facilitated interaction between network pathology scientists. Conducted training in bean pathology research methods. Supervised student research.

D-1.3. Ph. D Research: Visiting Research Fellow, CIAT, Cali, Colombia (Sept 1979 - Dec, 1981)

Conducted research on pathogenic variation of *Phaeoisariopsis griseola*, and *Pseudomonas syringae* pv *phaseolicola* in Colombia based on virulence. Evaluated CIAT germplasm bank for resistance to angular leaf spot.

D-1.4. MSc Research (Oct. 1977 - August, 1979)

Isolated, purified and characterized a severe strain of bean common mosaic virus. Conducted serological and electron microscopy tests.

D-1.5. Research Assistant, University of Nairobi, Kenya (July 1977 - September, 1977)

Worked under a CRISP project to evaluate germplasm for resistance to anthracnose of beans.

D-2. TEACHING AND TRAINING

D-2.1. Tutorial Fellow (Jan 1982-Nov, 1984), Assistant Lecturer (Nairobi (Dec 1984-August 1985), Lecturer (Sept. 1985-Dec 1988) and Senior Lecturer (Jan 1988- March 1990), Department of Crop Science University of Nairobi. Taught Crop Protection to BSc Agriculture undergraduates, Bacteriology, Nematology, to MSc. Plant Pathology, Seed Pathology and Resistance to plant diseases to MSc agronomy and MSc Breeding respectively.

D-2.2. Was a resource person in specialized regional courses organized by Commonwealth Science Council on Techniques for the culture and conservation of micro-organism, Nairobi, Kenya. 9th - 23rd January 1984. (b) Identification of micro-fungi, Nairobi, Kenya 21st June - 1st July, 1986

D-2.3. Was resource person on a training course organized at ICRISAT (India). on Research Methods and Techniques on Disease of Sorghum (ICRISAT, India).

D-2.4. Between 1990 to date, organized and offered several national and regional training programmes for technician and young scientists from different National Programmes in Eastern, Central and Southern Africa on Research Methods in Bean Pathology.

D-2.5. Supervised a total of 30 students conducting their BSc dissertation, MSc and PhD thesis research in Kenya, Uganda and Rwanda. MSc and PhD students. Currently supervising 3, PhD and one MSc student under a project (funded by DFID) on Epidemiology of root rots in Uganda.

Also co-supervising three students (2 PhD and 2 MSc) on characterizing diversity of *P. griseola* and on genetic improvement beans under the Rockefeller Foundation supported project

E. REFEREED PUBLICATIONS

George.S. Mahuku, María Antonia Henríquez , Jaime Muñoz and **Robin A. Buruchara**. 2002 Molecular Markers Dispute the Existence of the “Afro-Andean” group of the Bean Angular Leaf Spot Pathogen, *Phaeoisariopsis griseola*. **Phytopathology**. 92:580-589

Buruchara, R. A. and L. Camacho. 2000. Common bean reaction to *Fusarium oxysporum* f. sp. *phaseoli*, the cause of severe vascular wilt in Central Africa. **J. Phytopathology** **148:39-45**.

Buruchara R. A., Pastor-Corrales, M. A and Scheidegger, U. (1999). Fusarium Wilt Disease Caused by *Fusarium oxysporum* f. sp. *phaseoli* on a Common Bean Cultivar, G 2333, in Rwanda and the Democratic Republic of Congo. **Plant Disease**. **83:397**.

Otsyula, R. M., Ajanga, S. I., **Buruchara, R. A.** and C. S. Wortmann. 1998. Development of an integrated bean root rot control strategy for western Kenya. **African Crop Science Journal** **6: 61-67**.

Wortmann, C., **Buruchara, R. A.** and C. Eledu. 1998. Distribution of common Bean root rots in Sub-Saharan Africa. **BIC** **41: 212**.

Pyndji, M., Abawi, G. S. and **Buruchara, R. A.** 1997. Use of green manures in suppressing root rot severity and damage to beans in Uganda. **Phytopathology** **87:S 80** (Abstract).

Pastor-Corrales, M. A., **Buruchara, R. A.**, Afanador L., and Chacon M. I. 1997. Correspondence between the genetic diversity of Latin America and Africa isolates of *Phaeoisariopsis griseola*, the angular leaf spot pathogen of the common bean. **Phytopathology** **87:S76**. (Abstract)

Rusuku, G., **Buruchara, R. A.**, Gatabazi, M., Pastor-Corrales, M. A. 1997. Occurrence and distribution in Rwanda of soilborne fungi, pathogenic to the common bean. **Plant Dis.** **81:445-449**.

Songa, W., Hillocks, R. J., Mwang'ombe, A., and **Buruchara, R. A.** 1997. Screening common bean accessions for resistance to charcoal rot (*Macrophomina phaseolina*) in eastern Kenya. **Experimental Agriculture** **33:1-10**.

Buruchara, R. A. and Bua, B. 1997. Characterizing the Core Collection for resistance to Pythium and Rhizoctonia root rots. **BIC** **40**.

Ouko. J.O. and **R.A. Buruchara** 1989. Influence of different cropping systems on incidence and severity of bacterial pasture of cowpea (*Vigna unguiculata* (L) Walp caused by *Xanthomonas campestris* pv. *Vignicola* (Burkholder) Dye. **Tropical Pest Management**, **35 (3) 297 - 300**

Buruchara, R.A. Mukunya, D.M. and Gathuru, E.M.1989. Bacterial Black Spot of Mangoes in Kenya. **In Klement (ed). Pp 577-582 . Plant Pathogenic Bacteria; Proc. 7th Int. Conf. Plant Path. Bacteria.** Budapest, Hungary. 1989.

Buruchara, R.A., E.M. Gathuru and D.M. Mukunya. 1988. Disease progress of angular leaf spot caused by *Isariopsis griseola* Sacc and its implication on resistance of some bean (*Phaseolus vulgaris* L.) cultivars. **Acta Hortic. 218: 321-328.**

Buruchara, R.A. 1986. Tomato disease problems in Arid Kenya. **Acta Hortic. 190: 165.** (Abstract).

Buruchara, R.A. 1985. The nature and significance of transmission of *Isariopsis griseola*, Sacc. through seed of beans (*Phaseolus vulgaris* L.). **Acta Hortic. 153: 201-206.**

Buruchara, R.A. and M.A. Pastor-Corrales. 1981. Pathogenic variation and virulence of *Pseudomonas syringae* pv. *Phaseolicola* in beans (*Phaseolus vulgaris* L.) in Colombia. In **Lozano (ed) PP 341-351, Int. Conf. Plant Path. Bact. 5th Cali, Colombia. Proceedings, CIAT. 640 P.**

Buruchara, R.A. 1980. Identification of a severe strain of bean common mosaic virus in beans (*Phaseolus* L.) in Kenya. **MSc. Thesis**, University of Nairobi.

Buruchara, R. A. 1985. Determination of pathogenic variability in *Phaeoisariopsis griseola* Sacc. and *Pseudomonas syringae* pv. *phaseolicola* on beans (*Phaseolus vulgaris* L.) **PhD Thesis**, University of Nairobi.

F. SUBMITTED MANUSCRIPTS

Pyndji, M.M., Abawi, G.S. and **Buruchara, R.A.** Characterization of root rots in the highlands of southwestern Uganda and evaluation of bean germplasm for their resistance. **Submitted to *Plant Disease*.**

Pyndji, M.M., Abawi, G.S. and **Buruchara, R.A.** Use of local organic amendments and farmers bean varietal mixtures is suppressing root rot severity and damage to beans in Uganda. **Submitted to *Plant Disease***

G. OTHER PUBLICATIONS AND REPORTS.

Buruchara, R. A. 1998. Regional collaboration checks bean root rots in Kenya. **AgriForum No 3:14-15.**

Nderitu, J. H., **Buruchara, R. A.** and Ampofo, J. K. O. 1997. Relationship between bean stem maggot, bean root rots and soil fertility: literature review with emphasis on research in eastern and central Africa. **Technical report series No. 4. African Highland Initiative**, AHI Coordinating office, ICRAF, Nairobi, Kenya. 16 p.

Nderitu, J. H., **Buruchara, R. A.** and Ampofo, J. K. O. 1997. Management of bean root rots and bean stem maggot in the African Highlands. **Extension Manual.** AHI Coordinating office, ICRAF, Nairobi, Kenya

Sperling, L., Scheidegger, U., **Buruchara, R.**, Nyabyenda, and Munyanesa S. 1994. Intensifying Production among Smallholder Farmers: The Impact of Improved Climbing Beans in Rwanda. **Occasional Publication Series, No. 12. Network on Bean Research in Africa.** 13 p.

Sperling, L., Scheidegger, U.C. and **Buruchara, R.A.** 1993. Designing bean seed systems for smallholders. ILELA Newsletter, Vol.9 (1): 24-25.

Keya, S.O., S.K. Imbamba, D. Widdowson, C.P.M. Khamala and **R.A. Buruchara.** 1984. "Use of microbial genetic resources for controlling pests and vectors in developing countries 1984/1989. **A consultation/report by mircen, University of Nairobi to UNEP,** Nairobi, Kenya.

Ngundo, B.W., S.O. Keya, **R.A. Buruchara,** W.R., Opile, P.K. Michori, D.M. Masaba and G.M. Kairu, 1986. "**Report of the task force on bacterial blight of coffee and crinkle leaf**". C.R.F. Ruiru, Kenya.

Gathuru, E.M., D.M. Mukunya and **R.A. Buruchara,** 1987. Diseases of crop plants in small-scale farms in Embu District agro-ecological zones UMI-4 and farmers awareness of disease control methods. Integrated Crop Protection for Small-scale Farms in East and Central Africa. **Commonwealth Science Council Technical Publication Series No. 243: 157-185.**

H. WORKSHOP AND CONFERENCE PAPERS

Mukalazi, J., White, G., Muthumeenakshi, S., Pettitt, T., Carder, J. H., **Buruchara, R.,** Adipala, E. and Spence, N.J. (2000). Morphological and molecular identification of *Pythium* species pathogenic to common beans in Uganda. BSPP Presidential Meeting, Imperial College at Wye, Kent, 28-20 December 2000.

Tusiime, G., Carder, J. H., **Buruchara, R.,** Adipala, E. Spence, N.J., Grant, C. L. and Mayanja S (2000). Detection and diversity of *Fusarium solani* f.sp. *phaseoli* from common beans in south-western Uganda. BSPP Presidential Meeting, Imperial College at Wye, Kent, 28-20 December 2000.

J. Mukalazi, **R. Buruchara,** J. Carder, F. Muthumeenakshi, E. Adipala, F. Opio, G. White, T. Pettitt and N. J. Spence. 2001. Characterization of *Pythium* species to common bean in Uganda. Poster presented in the African Crop Science Conference. October 2001, Lagos, Nigeria

G. Tusiime, **R. Buruchara,** E. Adipala, J. Carder and N. Spence. 2001 Molecular and pathogenic variation among the *Fusarium solani* isolates from beans with *Fusarium* root rot symptoms. Poster presented in the African Crop Science Conference. October 2001, Lagos, Nigeria

Buruchara, R. A., R. A. Kirkby, H. Gridley and P. M. Kimani. Decentralized and Participatory Breeding Strategies for Beans in Africa: Evolution and Potential. Paper presented at the Africa-wide workshop on Participatory Plant Breeding. 7-11, May 2001. Bouake, Cote d'Ivoire.

P. M. Kimani, H. Gridley, **R. Buruchara** and R. Kirkby. 2000. Decentralized and participatory breeding strategy for bean in Africa: Its role and potential for institutionalization. Paper presented at the Africa-wide workshop on Participatory Plant Breeding. 7-11, May 2001. Bouake, Cote d'Ivoire.

Buruchara, R., Opio, F., Otsyula, R., Mukalazi, J., Tusiime, G., Carder, J. and Mahuku, G. Development of Integrated Management of Bean Root Rots in East and Central Africa: Past, Present and Future. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania.

Buruchara, R., Mahuku, G., Opio, F. Kijana, R., Liebenberg, M., and Ngulu. F. Angular leaf spot research in Africa: An overview. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania

P. Kimani, **R. Buruchara**, K. Ampofo, M. Pyndji, R. Chirwa and R. Kirkby. Breeding Bean for Smallholder Farmers in Eastern, Central and Southern Africa: Constraints, Achievements and Potential. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania

Musoni A, Kimani P, and **Buruchara R.** The Development and Status of Climbing Beans Technology in Rwanda & ECABREN Region. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania

R. M. Otsyula and **Robin Buruchara** Bean Root Rot Research in Kenya. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania

P. M. Kimani, **R. Buruchara**, D. Dauro and F. Ngulu. Participatory Plant Breeding (PPB): Highlights Of PPB Workshop And Implications For Bean Breeding In Africa. Paper presented at the Pabra Millennium Synthesis Workshop. 28 May – 2 June 2001. Arusha, Tanzania.

Bosco, B. and **R. A. Buruchara**. 1998. Screening bean germplasm for root rot resistance. Paper presented in the 3rd Pathology Working Group Meeting. Thika, Kenya, 25-28 May 1998.

Otsyula, R.M., Nderitu, H.H. and **R. Buruchara**. 1998. Interaction between bean stem maggot, bean root rots and soil fertility. Paper presented at the KARI/ODA Crop Protection Workshop. Nairobi, Kenya, 14-18 September 1998.

Musoni, A. and **R. A. Buruchara**. 1998. Transfer of root rot management technologies in Rwanda. Paper presented in the 3rd Pathology Working Group Meeting. Thika, Kenya, 25-28 May 1998.

Buruchara, R. A. 1997. Bean pathology research in support of East and Central Africa Bean Research Network (ECABREN). Paper presented in ECABREN multidisciplinary workshop. 12 - 17 May 1997, Embu, Kenya.

Chacon, M. I., Jara, C. Gastellanos, G., Posso C.E., **Buruchara, R.A.**, Cuasuer J.B. and Pastor-Corrales, M.A. Diversidad genetica y relacion entre aislamientos de Africa y America Latina del hongo de la mancha angular del frijol comun: Implication para el mejoramiento. Poster presented in Workshop on Bean Breeding in Latin America. CIAT, Cali, October 28-31 1996.

- Buruchara, R.A.** 1995 Development of management options for bean root rots: Lessons learnt from research in the Great Lakes Region. Paper presented at Huitieme Séminaire Régional sur l'amélioration du Haricot dans la région des Grands Lacs. November 6-9, 1995.
- Buruchara, R.A.** 1993. Effets de méthodes culturales et de la composante variétale dans une approche intégrée de contrôle de maladies racinaires du haricot au Rwanda. Actes du Séminaire sur la culture du Haricot du Burundi, Bujumbura, 15-17 Février 1993.
- Buruchara, R.A.** and Scheidegger, U.C. 1993. Development of cultural components in integrated management of root rots of beans. Paper presented at the 7eme Séminaire Régional sur l'Amélioration du Haricot dans la Région des Grands Lacs. 2-6th November 1992, Goma, Zaire.
- Buruchara, R.A.** 1991. "Use of organic Amendments in the Management of Root Rot of Bean". Dans CIAT (ed): Actes de Sixième Séminaire Régional sur l'Amélioration du Haricot dans la Région des Grands Lacs, Kigali, Rwanda, 21-25 Janvier. CIAT African Workshop Series No. 17.
- Buruchara, R.A.** 1991. "Differential Cultivars in *Colletotrichum lindemuthianum* Race Identification and Nomenclature". In Buruchara R. (ed) First Pan-African Working Group Meeting on Anthracnose of Bean, Ambo, Ethiopia, February 17-23. CIAT African Working Series No.15.
- Buruchara, R.A.** 1991. "Use of organic Amendments in the Management of Root Rot of Bean". Dans CIAT (ed): Actes de Sixième Séminaire Régional sur l'Amélioration du Haricot dans la Région des Grands Lacs, Kigali, Rwanda, 21-25 Janvier. CIAT African Workshop Series No.17.
- Buruchara, R.A.** 1991. "Resistance aux Maladies - Efficacité et Intégration Phytopathologie-Sélection". Dans CIAT (ed): Actes du Sixième Séminaire Régional sur l'Amélioration du Haricot dans la Région des Grands Lacs, Kigali, Rwanda, 21-25 Janvier. CIAT African Workshop Series No.17.
- Buruchara, R.A.** 1990. "Preliminary Information on Seed-Borne Fungi of Bean (*Phaseolus vulgaris* L.) in Kenya". In Smithson, J.B. Ed. Workshop on Bean Research in Eastern Africa, 2, Nairobi, Kenya, 1990. Proceedings. Debre Zeit, Ethiopia, CIAT Regional Programme on Bean in Eastern Africa. CIAT African Workshop Series No.7. PP. 257-261.
- Buruchara, R.A.** Gathuru, E.M. and D.M. Mukunya. 1983. A severe strain of bean common mosaic virus in beans in Kenya. Proc. 3rd Inter. Conf. on the Impact of Viral Diseases on the Development of Middle East and African countries. Kuwait.
- Buruchara, R.A.**, D.M. Mukunya and M.A. Pastor-Corrales. 1983. Pathogenic variability of *Isariopsis griseola* Sacc on bean (*Phaseolus vulgaris* L.). Proc. 4th Inter. Congress of Plant Pathology. Melbourne, Australia.
- Gathuru, E.M. and **R.A. Buruchara**. 1979. A cowpea yellow virus in Kenya. Proc. Symposium Grain Legume Improvement in Eastern Africa. Nairobi, Kenya

Buruchara, R.A. and A.P. Tyagi, 1987. Adaptation and resistance in beans (*Phaseolus vulgaris*) to angular leaf spot and rust in Kenya. Paper presented in Regional Workshop on Bean Research in Eastern Africa. Kampala, Uganda.

Buruchara, R.A. 1987. Disease management of oil crops. Paper presented in the National oil crop workshop. Egerton University.

Gathuru, E.M. and **R.A. Buruchara.** 1979. A cowpea yellow virus in Kenya. Proc. Symposium Grain Legume Improvement in Eastern Africa. Nairobi, Kenya

I. BOOK CHAPTERS

Allen, D. J., **Buruchara, R. A.** and J.B. Smithson. 1998. Diseases of Common Bean. pp. 179-265. In D.J Allen and J.M. Lenne (eds.). **The Pathology of Food and Pasture Legumes.** CAB International, Wallingford. 750 p.

J. EDITING

D. J. Allen and **R. A. Buruchara** (eds.), 1998. Proceedings of the 2nd Pathology Working Group Meeting on fungal diseases. Kakamega, Kenya, 5-8 June 1995. **CIAT African Workshop Series No 37. 165 p.**

D. J. Allen and **R. A. Buruchara** (eds.), 1998. Proceedings of the 1st Working Group Meeting on Bacterial and Viral Bean Diseases. Kampala, Uganda, 13 - 16th June 1994. **CIAT African Workshop Series No. 34. 89 p.**

Buruchara, R.A. (ed.). 1991. Proceedings of the First Pan-African Working Group Meeting on Anthracnose of Beans. **CIAT African Workshop Series No. 15.**

Buruchara, R.A. and Scheidegger, U. (eds.). 1992. Proceeding of the Pan-Africa Plant Pathology Working Group Meeting. CIAT African Workshop Series.