



**Professor Canute P. M. Khamala, Ph.D**  
Professor in Insect Biology

### **Professional background**

Professor Khamala is one of the pioneer founders of the former Department of Zoology at the University of Nairobi having joined as a Research Assistant in 1965 a team of young English expatriate lecturers in the early days of the Royal Technical College of East Africa that later transformed into the University of Nairobi on 16th December 1970.

Armed with a B.Sc. (Honours) degree from the University of Liverpool, UK, and through the initiative and guidance of the first Professor and Head of the Department, Professor Douglas Kettle, he developed interest in insect taxonomy and received the Ph.D degree in 1968 on the title "Survey of the *Culicoides latreille* (Diptera: Ceratopogonidae) of East Africa". This was the result of the descriptions and identification of 61 species of *Culicoides* collected, largely with light traps, in East Africa along a NW-SE transect from the then Queen Elizabeth National Park in Uganda near the Congo border to Mombasa on the Indian Ocean. It was undertaken to provide a firm taxonomic basis for investigations on diseases transmitted by these minute biting insects. This work was his entry point into the field of medical entomology and it was first of its kind in Africa. It was accepted and published as a separate volume by the Royal Entomological Society of London, *Trans.R. ent.*, Vol. 123:1-123, 1971.

Ever since, Professor Khamala has continued to conduct research and teach entomology at the University of Nairobi. In 1972, jointly with the late Professor T.R. Odhiambo, they established the Department of Entomology within the Faculty of Agriculture, which was subsequently transferred to the Faculty of Science to facilitate the launching of the International Centre for Insect Physiology and Ecology (ICIPE) in 1976. In this regard, Professor Khamala was also introduced to agricultural entomology, which is a world of its own compared to medical entomology, and in which he has competently researched, taught, supervised postgraduate students and published.

In 1968, Professor Khamala was promoted to the position of Lecturer and grew up in the system to become Professor of Zoology in 1983. His research experience spans over 40 publications in renowned refereed journals, abstracts of which are available on request. He has supervised successfully a total of over 40 M.Sc. and Ph.D theses.

Some of the awards he has been honoured with include the United Nations International Atomic Agency Post-doctoral scholarship to train in Radioisotope methods for the peaceful use of radiation and radioisotopes for research in Entomology tenable at the Institute of Applied Zoology, University of Bonn,

Germany; U.S.A. State Department Fullbright Award tenable at the University of Iowa, U.S.A Research Grants from formerly the Crown Agent, UK later the Overseas Development Assistance Department, UK, tenable at the former University of East Africa, University College of Nairobi; and more recently on 12th December 2004, honoured by H.E. President Mwai Kibaki with an award of the Elder of the Burning Spear (EBS) in recognition of his contribution in the fields of Education and Environment for the successful launching of the National Environment Management Authority in Kenya as its first Chairman.

## **Educational Background**

Post -Doctoral Course- Title: Radioisotope Methods: The peaceful use of radiation and radio isotopes for research in Entomology" at the Institute of Applied Zoology, University of Bonn, Germany.1969(April-July)

Ph.D.1968 University of East Africa (U.E.A.), Nairobi University College. in Entomology. Thesis Title: "Survey of Culicoides (Diptera: Ceratopogonidae) of East Africa".

Bachelor of Science Degree (B.Sc. Hons.). Subjects Studied: 1st Year: Botany, Zoology, Chemistry and Geology. 2nd and 3rd Year: Botany and Zoology. 1962-1965 University of Liverpool, U.K, Faculty of Science.

Makerere University College, Kampala, Uganda, Faculty of Science 1959-1961. Examination Taken: University of London Preliminary Examination in Biology, Chemistry and Geography. Passed with distinction.

## **Research Activities & Areas of interest**

Topic 1: "Comparative morphology of the Subfamily Pyraustinae (Pyrallidae, Lepidoptera) of East Africa".

Topic 2: Indigenous botanical pesticides for use in integrated pest management (IPM) of insect pests of brassicas by small scale farmers in Kenya.

Topic 3: Ecological and behavioural studies of Anopheles mosquitoes and malaria parasite transmission in Kilifi and Malindi Districts.

Topic 4: The transmission of bancroftian filariasis parasite and its interaction with malaria parasites in their mosquito vectors of filariasis in the coastal region of Kenya.

Topic 5: Country wide spatial and eco-epidemiological analysis of Anopheles mosquitoes relative to malaria endemicity in Kenya.

Topic 6: Feeding patterns in nature of Anopheles malaria vector in Kenya: Effect of host characteristics on malaria parasite infection.

Topic 7: Genetic differentiation and barriers to gene flow in malaria transmission in Kenya.

Topic 8: Evaluate the genetics for populations of *Anopheles gambiae* relative to factors affecting *P. falciparum* transmission.

### Selected Peer Reviewed Publications

1. 1980. Khamala, C.P.M., and Ng'ang'a, P.P., Resistance of cowpea varieties to the legume bud Thrip *Megalurothrips sjostedti* (Tryb.) (Thysanoptera: Thripidae) in Kenya. *Kenya J. Sci. & Tech. Series B.*, 2: 3-7.
2. 1981. Khaemba, B.M. and Khamala, C.P.M., Relation of pod age to the expression of resistance in cowpeas *Vigna unguiculata* (L.) Walp. to common pod-sucking bugs *Riptortus dentipes* F. and *Anoplogmemis curvipes* F. (Hemiptera: Coreidea). *Kenya J. Sci. & Tech.* 2 (2): 47-52.
3. 1982. Mailu, A.M., Khamala, C.P.M. and Rose D. J.W., Sampling techniques for Populations of Pine Woolly Aphid *Pineus pini* (Gmelin) (Homoptera) *Kenya Sci. & Tech.*, 3:9-18.
4. 1982. Mailu, A.M., Khamala, C.P.M. and Rose D.J.W., Establishment of Pine Woolly Aphid *Pineus pini* (L) (Homoptera: Adelgidae) on some host trees. *Kenya J. Sci. Tech.* 3:61-68.
5. 1983 Khamala, C.P.M. and Ng'ang'a, P.P., Insecticide evaluation against the Legume bud Thrips *Megalurothrips sjostedti* (Tryb.) (Thysanoptera: Thripidae), *Kenya J. Sci & Tech.* 4 (1): 35-42.
6. 1984 Ng'ang'a, P.P. and Khamala, C.P.M., Populurothrips dynamic and seasonal incidence of the legume bud thrips *Megalurothrips sjostedti* (Tryb.) (Thysanoptera: Thripidae) in cowpea fields in Kenya. *Kenya J. Sci. & Tech:* 5 (1&2) 15-25, 1984.
7. 1986. Mebragtu, Y., Beach, R.M. Hendricks, L.D. and Khamala, C.P.M. Occurrence of *Simulium* (*Edwardsellum*) *damnosu* s.l. Diptera: Simuliidae in nine river system in Kenya. *Journal of Medical Entomology*, 23:111-112.
8. 1986. Mebrahtu, Y., Beach, R.F., Khamala, C.P.M. and Hendricks L.D. Characterization of *Simulium* (*Edwardsellum*) *damnosum* s.l. populations from six river systems in Kenya by cellulose acetate eletate electrophoresis. *Trans.R. Soc.Trop. Med & Hyg.* 80: 914-922.
9. 1987 Mebrahtu, Y., Khamala, C.P.M., Hendricks, L.D. and Beach, R.F. Mermithidae (Nematoda) infection of the aquatic stages of *Simulium* (*Edwardsellum*) from the Nine river systems in Kenya. *Proc. Helminthol. Soc. Wash.*, 54 (1): 156-157.
10. 1988 Lucie, M. Rogo, Khamala, C.P.M., and Mutinga, M.J. Biochemical identification of *Phlebotomus* (*Larrousius*) *pedifer* and *Phlebotomus* (*Larrousius*) *elegonensis*. *Bioch system. & ecol.*, 16 (1/8): 655-659.
11. 1995 Khamala, C.P.M. and Mbogo, C. Relationships between *Plasmodium falciparum* transmission by vector populations and the incidence of severe disease at mine sites on the Kenya Coast. *Am. J. Trop. Med.Hyp.*, 52 (3): 201-206.
12. 1977: Castelino, J. B. and Khamala, C.P.M. (Eds.). *The Role of Water Resources in Development*, Kenya National academy for Adv. of arts & Science, Nairobi.
13. 1978: Khamala, C.P.M. and Castelino, J.B. (Eds.) *Energy Resources in E.A.* Kenya National Acad., for Adv. of Arts & science, Nairobi.
14. 1979: Khamala, C.P.M. (Ed.) *Science and Technology for Development*, Proceedings of Seminar, 21-24 March, Nairobi, 215pp.
15. 1979: Khamala, C.P.M., (Ed.). *Science and Technology and the Future. A report on Proceedings of the African Regional Symposium*, 10-12 July, Nairobi, Kenya.

16. 1996: Khamala, C.P.M. Lecture Notes on. History and Philosophy of Biology.
17. Khamala, C.P.M. Invertebrate Zoology
18. Dictionary of Zoology

## **Consultancies**

1981 ECA: Study on the impact of local research and development in agriculture and agricultural development: report of a mission to selected African countries: Sudan, Ghana, Cameroon and Zambia. ECA, Addis Abada (Ethiopia).

1982 African Regional Centre for Technology: Inventory of scientific and technological establishments and equipment in Botswana, Malawi, Madagascar, Mozambique, Kenya and Lesotho. ARCT, Dakar, Senegal.

1983 K.E.M.R.I.: Research Programmes and Projects; K.E.M.R.I., Nairobi.

1984: Kenya Wildlife Fund Trustees & UNEP Ecological studies in Kakamega Forest as a sample unit in the global strategies of conservation in vulnerable tropical ecosystems with special references to the insect status, K.W.F.T., Nairobi

1984 MIRCEN: Use of microbial genetic resources for controlling insect pests and vectors in developing countries, MIRCEN, Nairobi.

## **Society membership**

1. Royal Entomological Society of London.
2. East African National History Society.
3. Kenya National Academy of Sciences.
4. African Association for Advancement of Science and Technology.

## **Current/recent major Non-University duties/responsibilities in national development**

1. Member: Board of Management of the Kenya Medical Research Institute (KEMRI), 1979 -1989.
2. Secretary: Kenya National Academy of Sciences 1972-1988.
3. Member: National Documentation and Information Committee, National Council for Science and Technology, 1978 to present.
4. Member: Natural Sciences Research Advisory Committee. Ministry of Regional Development, Science and Technology, 1979-1982.
5. Vice Chairman: African Association for Advancement of Science and Technology 1978-present.
6. Life Member: International Council for Scientific Development.
7. Member: International Oceanography Committee (Kenya Nominee 1981).
8. Chairman: National Environment Management Authority (NEMA) 2003-2006.