CURRICULUM VITAE

I PERSONAL

NAME : **AHMED HASSANALI**

Current Address : Chemistry Department, Kenyatta University
P O Box: 43844-00100, Nairobi, Kenya

II CURRENT POSITION

Professor of Chemistry, Kenyatta University, Nairobi, Kenya

III HIGHER EDUCATION

1962-1964:	B.Sc (General), University of Adelaide (Australia)
1965:	B.Sc (Hons, 1st Class), 1st Position (shared with another student), University of Adelaide (Australia)
1967-9:	Ph.D University of Nottingham (UK) Thesis – The Chemistry of some Antibiotics

IV PROFESSIONAL APPOINTMENTS

2008 (Nov) to date	Professor of Chemistry, Kenyatta University, Nairobi, Kenya
1995 (June) -1997 (May):	Deputy Director General (Research), ICIPE
1993 – 2006:	Principal Scientist & Head, Behavioural & Chemical Ecology Department, and Leader of Locust & Migrant Pests, Programme,
ICIPE 1983 - 1992:	Senior (and from 1989 Principal) Research Scientist & Head, Chemistry & Biochemistry Research Unit, ICIPE
1981 - 1983:	Senior Research Scientist, Chemistry and Bioassay Research Unit, ICIPE
1978 - 1985:	Professor of Chemistry, University of Dar-es-Salaam, Tanzania
1974 - 1978:	Associate Professor, Chemistry Department, University of Dar-es-Salaam, Tanzania
1975 - 1976:	Consultant for International Development Research Centre (Canada) on *Striga* & *Orobanche* germination stimulants, University of Sussex, UK.
1972 - 1974:	Senior Lecturer, Chemistry Department, University of Dar-es-Salaam, Tanzania
1969 - 1972:	Lecturer, Chemistry Department, University of Dar-es-Salaam
1967 - 1969:	Special Assistant Lecturer in Physical Chemistry (Rockefeller Staff Development Programme), University of Dar-es-Salaam
1966:	Research Assistant, Chemistry Department, University of Dar-es-Salaam

V AWARDS AND HONOURS

2004:	Doctor of Science (*Honoris Causa*), Kenyatta University, Kenya
1989:	Elected Fellow, African Academy of Sciences
1984 (Sept-Nov):	Sir John Pringle Exchange Fellowship, Rothamsted ExperimentaL Station, England
1974 - 1975:	Royal Society Fellowship for Sabbatical at University of Sussex, UK
1967 - 1969:	UNESCO fellowship to undertake PhD at the University of Nottingham, UK
1965:	University of Adelaide, shared top position with another Honours student, and awarded the Chemistry Prize
1962 - 1965:	Special Commonwealth African Aid Programme (SCAAP) Fellowship, (University of Adelaide, Australia)

VI CURRENT RESEARCH INTERESTS

Desert Locust. Pheromones mediating aggregation, synchronous maturation and communal oviposition in the gregarious phase; cross-stage pheromonal effects and exploitation of these novel effects in the subtle control of hopper bands and adult aggregations; phase dynamics and the role of semiochemicals and environmental factors in the genesis of gregarious populations and in the developments of outbreaks; hope to initiate similar studies on other African locust species and the African armyworm.

Malaria Vectors. The chemical ecology of oviposition, vector-plant relationships (including sourcing for sugars and for secondary compounds for self-medication), and blood seeking behaviour of *Anopheles gambiae*; relative roles of the two in vectorial dynamics, identification of mediating signals and explore their potential in behavioural manipulations of the insects; spatial relations of alternative hosts of zoophilic *An. arabiensis* (theoretical treatment and experimental validation) and the combined use of zoophilic diversion ('pull') and repellent fumigants ('push') in the control of this mosquito species.

Tsetse flies. The chemical ecology of host selection and location of savannah and riverine tsetse flies; identification of attractants from preferred hosts (e.g. buffalo and cattle for the former and monitor lizards for the latter) and repellents from refractory wild life (e.g. waterbuck); exploitation of these semiochemicals in tsetse control.

Ticks. Studies on the (i) feeding site location behaviour of *Rhipicephalus appendiculatus* (vector of the livestock disease, East Coast Fever) and identification of the mediating chemical signals;
(ii) behavioural manipulative studies to control this tick and *Amblyomma variegatum* (vector of heartwater) using attractive/repellent semiochemicals and acaricides or fungal pathogens.

Parasitic weeds. Elucidation of the allelopathic basis of striga-controlling properties of *Desmodium* spp.; identification of the specific genomic traits of *Desmodium* spp. associated

with allelopathic agents and explore the possibility of transferring these to food legumes.

Natural Products. Bioprospecting for plants with mosquito/tick repellent essential oils and individual constituents, mosquito larvicidal and acaricidal constituents, and post-harvest protectants; evaluation of traditional methods of using mosquito repellents plants and exploring improvements thereof through screenhouse behavioural studies and analyses of expelled fumigants, development of promising products for commercialization.

VII ACCOMPLISHMENTS OF PRACTICAL SIGNIFICANCE

Desert Locust. Major adult pheromone of the desert locust shows very interesting cross-stage Physiological effect on gregarious nymphal bands; its potential in hopper control in the field demonstrated (product patented); a conceptual kinetic model of transformation of solitarious desert locusts to gregarious pests has opened up the possibility of a quantitative predictive model of locust outbreaks.

Malaria vectors. Attraction of human foot to anthropophilic malaria vectors has been shown to be dedendent on the relative proportions of repellent and attractive blends (both due to be patented).

Tsetse flies. Kairomones used by savannah tsetse to locate their preferred hosts have formed the bases of bait technologies for mass trapping these flies; two types of tsetse repellents have been identified: a synthetic modification of a mild natural repellent (patented) and the key blend of odour compounds of a very refractory 'host' (waterbuck) repellent to tsetse; both have shown potential for tsetse control.

Ticks. Location of preferred respective feeding sites by adult *Rhipicephelus appendiculatus* (vector of the animal disease East Coast Fever) and *R. eversi* has been shown to be due to 'push-pull' effects of repellents (from unpreferred parts of the animal body) and attractants (from preferred parts). These semiochemical blends have been partially charaterised; once this is completed, they are expected to provide very useful tools for on-host behavioural manipulation of the ticks and their control.

Parasitic weeds. Key constituents in the root exudates of desmodium involved in the germination of striga seeds and their post-germination inhibition have been characterized.

Natural Products. Two sesquiterpenoids have shown a lot of promise as mosquito repellents and remain to be exploited commercially. Meliaceae limonoids have shown promise as mosquito larvicides/ growth disruptants/trypanocides.

VIII REFEREED RESEARCH PUBLICATIONS

DESERT LOCUSTS AND RELATED ACRIDIDS

1. "Novel cross-stage solitarising effect of gregarious-phase adult desert locust (*Schistocerca gregaria* (Forska˚l)) pheromone on hoppers (**2010**). Magzoub O. Bashir and Ahmed Hassanali. *J. Insect Physiology*, 56:640-645.

2. "Diel Behavioral Activity Patterns in Adult Solitarious Desert Locust, *Schistocerca gregaria* (Forsk°al)" (**2010**). Sidi Ould Ely, Peter G N Njagi, Magzoub Omer Bashir, Salah El-Tom

El- Amin, Ahmed Hassanali. *Psyche,* Volume 2011, Article ID 459315, doi:10.1155/2011/459315.

3. "Concentration-dependent parsimonious releaser roles of gregarious male pheromone of the desert locust, *Shistocerca gregaria'* (**2008**). Edwin Rono, Peter G.N Njagi, Magzoub Bashir and Ahmed Hassanali. *J. Insect Physiology* , 54:162-8.

4. "Mate Location Mechanism and Phase-Related Mate Preferences in Solitarious Desert Locust, *Schistocerca gregaria* " (**2006**). Sidi Ould Ely, Hassan Mahamat, Peter G.N. Njagi, Magzoub Omer Bashir, Salah El-Tom El-Amin, and Ahmed Hassanali. *Journal of Chemical Ecology* 32: 1057-69.

5. "Desert locust gregarization: a conceptual kinetic model" (**2005**). Ahmed Hassanali, Magzoub O. Bashir, Peter G.N. Njagi, Sidi Ould Ely. *Journal of Orthoptera Research* 14 (2) 223-226.

6. "The nature of the gregarising signal responsible for maternal transfer of phase of the offspring in the desert locust *Schistocerca gregaria*" (**2001**). A.G. Malual, A. Hassanali, B. Torto, Y.O.H. Assad and P.G.N. Njagi. *Journal of Chemical Ecology*, 27, 1423-1435.

7. "Changing oviposition preferences of the desert locust, *Schistocerca gregaria* (forskål) suggest a strong species predisposition for gregarisation" (**2000**). Bashir M.O., Hassanali A., Rai M.M. and Saini R.K. *Journal of Chemical Ecology*, 26:1721-1733.

8. "The role of different components of pheromone emission of mature males of the desert locust *Schistocerca gregaria* (Forskal) (Orthoptera: Acrididae) in accelerating the maturation of immature adults" (**2000**). Mahamat H., Hassanali A. and Odongo H. *Insect Science and Its Application*, 20, 1-5.

9. "Time-course haemolymph juvenile hormone titres in solitarious and gregarious adults of *Schistocerca gregaria*, and their relation to pheromone emission, CA volumetric changes and oocyte growth" (**2000**). Tawfik A.I., Treiblmayr K., Hassanali A., and Osir E. *Journal of Insect Physiology*, 46, 1143-1150.

10. "Insights for the management of different locust species from new findings on the chemical ecology of the desert locust" (**1999**). Hassanali A. and Magzoub O.B. *Insect Sci. Applic.* 19(4), 369-376.

11. "Intra- and interspecific aggregation responses of *Locusta migratoria migratoriodes* and *Schistocerca gregaria*" and a comparison of their pheromone emissions" (**1999**). Niassy A., Torto B., Njagi P.G.N., Hassanali A., Obeng-Ofori D. and Ayertey J.N. *Journal of Chemical Ecology* 25, 1029-1041.

12. "Evidence for additional pheromonal components mediating oviposition aggregation in *Schistocerca gregaria*" (**1999**). Torto B., Assad Y.O.H., Njagi P.G.N. and Hassanali A. *Journal of Chemical Ecology* 25, 835-845.

13. "Semiochemical modulation of oviposition behaviour in the gregarious desert locust *Schistocerca gregaria*" (**1999**). Torto B., Assad Y.O.H., Njagi P.G.N. and Hassanali A. *Pesticide Science*, 55, 570-571.

14. "Identification of components of the oviposition aggregation pheromone of the gregarious desert locust, *Schistocerca gregaria*" (**1997**). M.M. Rai, A. Hassanali, R.K. Saini, H. Odongo, and H. Kahoro *J. Insect Physiology* 43, 83-87.

15. "Effects of fifth instar nymphs on the maturation of adults of the desert locust *Schistocerca gregaria* (Orthoptera: Acrididae)" (**1997**). Y.O. Assad, A. Hassanali, B. Torto, H. Mahamat, N.H.H. Bashir and S. El. Bashir. *J. Chem. Ecol.* 23, 1373-1388.

16. "Vitellogenin titres in normal and accelerated maturation of gregarious phase *Schistocerca gregaria*" (**1997**). H. Mahamat, A. Hassanali and H.J. Ferenz. *Comparative Biochemistry and Physiology* 116, 447-451.

17. "Seasonal variation in the essential oil composition of *Commiphora quadricincta* and its effect on the maturation of immature adults of the desert locust, *Schistocerca gregaria"* (**1997**). Assad, Y.O.H., Torto, B., Hassanali, A., Njagi, P.G.N., Bashir, N.H.H. and Mahamat, H. *Phytochemistry* 44, 833-842.

18. "Haemolymph pigment composition as a chemometric indicator of phase of the desert locust *Schistocerca gregaria*" (**1997**). Mahamat H., Hassanali A. and Munyinyi D. *Insect Science and Its Application* 17, 199-204.

19. "Effects of juvenile hormone treatment on phase changes and pheromone production in the desert locust, Schistocerca gregaria (Forskal) (Orthoptera:Acrididae) (**1997**). Tawfik, A.I., Osir,, E.O., Hassanali, A., Ismail, S.H. *Journal of Insect Physiology* 43, 1177-1182.

20. "Phase-independent responses to phase specific aggregation pheromone in adult desert locusts, *Shistocerca gregaria (Forskal) (Orthoptera : Acrididae)*" (**1996**). Peter G. N. Njagi, Daniel Obeng-Ofori, Baldwyn Torto and Ahmed Hassanali. *Phys. Entomology* 21, 131-137.

21. "Effects of shifting to crowded or solitary conditions on pheromone release and morphometrics of the desert locust, S*chistocerca gregaria* (Forskal) (Orthoptera: Acrididae)" (**1996**). Deng, A.L., Torto, B., Hassanali, A., and Ali, E.E. *J. Insect Physiology* 42,771-776.

22. "Aggregation pheromone system of nymphal gregarious desert locust, *Schistocerca gregaria* (Forskål) (Orthoptera:Acrididae)" (**1996**). Torto, B., Njagi P.G.N., Hassanali A. and Amiani, H. *J. Chem. Ecol.* 22, 2273-2281.

23. "Semiochemicals from froth of egg pods of *Schistocerca gregaria* (Forskal) attract ovipositing females" (**1995**). R. K. Saini, M. M. Rai, A. Hassanali, J. Wawiye and H. Odongo. *J. Insect. Phys.* 41, 711-716.

24. "Sex differentiation studies relating to releaser aggregation pheromones of the desert locust, *Schistocerca gregaria*" (**1994**). Obeng-Ofori D., Njagi P.G. N., Torto B., Hassanali A. &

Amiani H. *Entomol. exp.appl*. 73, 85-91.

25. "Aggregation pheromone system of the adult gregarious desert locust, *Schistocerca gregaria* (Forskall)" (**1994)**. Torto B., Obeng-Ofori D., Njagi P.G.N., Hassanali A., Amiani H. *J. Chem. Ecol.* 20(7), 1749-1762.

26. "Sexual communication in the desert locust (Orthoptera: Acrididae): Evidence of a sex pheromone" (**1994)**. Inayatullah C., El Bashir S. M., Hassanali A. *Env. Entomol* 23 (6), 1544-1551.

27. "Faecal volatiles as part of the aggregation pheromone complex of the gregarious desert locust, *Schistocerca gregaria* (Forskal) (*Orthoptera : Acrididae*)" (**1994)**. Daniel Obeng-Ofori, Baldwyn Torto, Peter G.N. Njagi, Ahmed Hassanali & Habert Amiani, *J. Chem.Ecol*., 20(8), 2078-2087.

28. "Evidence for the mediation of two sets of releaser pheromones in the aggregation behaviour of the gregarious locust *Schistocerca gregaria*" (**1993)**. Obeng-Ofori D., Torto B. and Hassanali A. *J. Chem. Ecol*. 19(8), 1669-1676.

29. "Studies on the maturation-accelerating pheromone of the desert locust *Schistocerca gregaria* (Forskall) (Orthoptera: Acrididae)" (**1993)**. H. Mahamat, A. Hassanali, H. Odongo, B. Torto & El-Bashir, E. M. *Chemoecology*, 4, 159-164.

MEDICAL VECTORS

30. "Repellent activity of catmint, *Nepeta cataria*, and iridoid nepetalactone isomers against Afro-tropical mosquitoes, ixodid ticks and red poultry mites" (**2011**). Michael A. Birkett, Ahmed Hassanali, Solveig Hoglund, Jan Pettersson, John A. Pickett. *Phytochemistry,* 72,109 (doi:1016/j.phytochem.2010.09.016).

31. "Biological cost of tolerance to heavy metals in the mosquito *Anopheles gambiae"* **(2010)** P.O. Mireji, J.Keating, A. Hassanali, C. Mbogo, M. N. Muturi, J.I.Githuri and J.C.Beier. *Medical and Veterinary Entomology*, 24, 101-107.

32. "Expression of metallothionein and a-tubulin in heavy metal-tolerant *Anopheles gambiae* sensu stricto (Diptera: Culicidae) **(2010)**. Paul O. Mireji, Jseph Keating, Ahmed Hassanali, Daniel E. Impoinvil, Charles M. Mbogo, Martha N. Muturi, Hudson Nyambaka, Eucharia U. Kenya, John I. Githure, John C. Beier. *Ecotoxicology and Environmental Safety,* 73, 46–50.

33. "Antimosquito and antimicrobial clerodanoids and a chlorobenzenoid from *Tessmannia* species" **(2010).** Charles Kihampa, Mayunga H.H. Nkunya, Cosam C. Joseph, Stephen M. Magesa, Ahmed Hassanali, Matthias Heydenreich and Erich Kleinpeter. *Natural Product Communication,* 5(2), 175-178.

34. "Constituents of the essential oil of *Suregada zanzibariensis* leaves are repellent to the mosquito, *Anopheles gambiae* s.s." (**2010**). Ester Innocent, Cosam C Joseph, Nicholas K Gikonyo, Mayunga H H Nkunya, and Ahmed Hassanali. *Journal of Insect Science*: Vol. 10:57 (online: insectscience.org/10.57).

35. "Arm-in-cage testing of natural human-derived mosquito repellents" (**2010**). James G Logan, Nina M Stanczyk, Ahmed Hassanali, Joshua Kemei Antonio E G Santana, Karlos A L Ribeiro, John A Pickett, A Jennifer Mordue (Luntz). *Malaria Journal*, **9**:239 (doi:10.1186/1475-2875-9-239).

36. "Comparative responses of ovipositing *Anopheles gambiae* and *Culex quinquefasciatus* females to the presence of *Culex* egg rafts and larvae" (**2010**). Wachira S.W., Ndungu, M., Njagi, P.G.N., and Hassanali A. *Medical and Veterinary Entomology*, 24 (4), 369-374.

37. "Laboratory evaluation of the aqueous extract of *Azadirachta indica* (Neem) wood chippings on *Anopheles gambiae s.s*(Diptera: Cilicidae) mosquitoes (**2009**). Annabel Howard, Elizabeth Adongo, Ahmed Hassanali, Francois Omlin, Anthony Wanjoya, Guoja Zou and John Vulule. *J. Med. Entomol.* 46, 107-114.

38. "Antiplasmodial, anti-trypanosomal, anti-leishmanial and cytotoxicity activity of selected Tanzanian medicinal plants" **(2009)** H.M. Malebo, W. Tanja, M. Cal, S.A.M. Swaleh, M.O. Omolo, A. Hassanali, U.Sequin, M. Hamburger, R. Brun, and I.O. Ndiege. *Tanzania Journal of Health Research,* 11 (4), www.bioline@org.br/journals

39. "Larvicidal and IGR activity of extract of Tanzanian plants against malaria vector mosquitoes" **(2009**) Kihampa, Charles, Joseph, Cosam C., Nkunya, Mayunga H. H., Magesa, Stephen M, Hassanali, Ahmed, Heydenreich, Matthias, Kleinpeter, Erich. *J. Vector Borne Dis*. 46,145-52.

40. "Larvicidal properties of some Tanzanian plant species against *Anopheles gambiae s.s*. Gile (Diptera:Culicidae) mosquitoes" **(2009)** Ester Innocent, Joseph C. Cosam, Nicholas K. Gikonyo, Mayunga H.H. Nkunya and Ahmed Hassanali. *Int. J. Biol. Chem. Sci*. 3 (2), 266-270.

41. "Anti-mosquito and antimicrobial nor-halimanoids, isocoumarins and an anilinoid from *Tessmannia densiflora*" **(2009)** Charles Kihampa, Mayunga H.H. Nkunya, Cosam C. Joseph, Stephen M. Magesa, Ahmed Hassanali, Matthias Heydenreich, Erich Kleinpeter. *Phytochemistry*, 70, 1233-1238.

42. "Rate of plant sugar digestion at different physiological status of female *Anopheles gambiae* and effects of plant diets quality on their lifespan and reproduction" **(2008).** H. Manda**,** L. Gouagna, J. Githure, A. Hassanali and W. Foster, *Proceeding of 4th CPB Meeting in Africa: MARA,* p 165-172.

43. "Regulation of oviposition in *Anopheles gambiae s.s.* : role of inter- and intra-specific

signals" (**2008**). Leunita A. Sumba, C. Brandon Obungafor, Arop L.Deng and Ahmed Hassanali. *J. Chem Ecology* 34, 1430-1436.

44. "Growth disruption activity of polar extracts from *Kotschya uguenesis* (Fabaceae) against *Anopheles gambiae* s.s. (Diptera: Culicidae) larvae **(2008)** Ester Innocent, Cosam C. Joseph, Nicholas K.Gikonyo, Mayunga H.H.Nkunya and Ahmed Hassanali, *Int. J. Trop. Insect Sci.* 28, 220-224.

45. "Mosquito larvicidal constituents from *Lantana viburnoides* (Verbenacea)" **(2008)** Esther Innocent, Cosam N. Joseph, Nicholus Gikonyo, Mainen J.Moshi, Mayunga H. H. Nkunya and Ahmed Hassanali. *J.Vector Borne Dis*. 45, 240-244.

46. "Zooprophylactic diversion of mosquitoes from humans to alternative hosts: a static simulation model" (**2008).** Hassanali, A., Nedorezov, L.V. and Sadykov, A.M. *Ecological Modelling* 212, 155-161.

47. "Effect of discriminative plant-sugar feeding on survival and fecundity of *Anopheles gambiae s.s.* (**2007**). H. Manda, L.G. Gougagna, W.A. Foster, R.R. Jackson, J.C. Beier, J.I. Githure, and A. Hassanali. *Malaria Journal* **6**, 113.

48. "Heavy Metals in Mosquito Larval Habitats in Urban Kisumu and Malindi, Kenya, and their Impact" (**2007).** Mireji, P.O., Keating, J., Hassanali, A., Mbogo, C.M., Nyambaka, H., Kahindi, S. & Beier, J.C. Ecotoxicology and Environmental Safety 70, 147-153.

49. "*Anopheles gambiae* exploits the treehole ecosystem in western Kenya: a new urban malaria risk?" (**2007).** Omlin, F.X., Carlson J.C., Brandon Ubunguafor, C. and Hassanali, A. Am. J. Trop. Med. Hyg. 77, 264-269.

50. "The antiplasmodial acitivity of spermine alkaloids isolated from *Albizia gummifera*" (**2007**). G.M. Rukunga, F.W. Muregi, F.M. Tolo, S.A. Omar, P. Mwitari, C.N. Muthaura, F. Omlin, W. Lwande, A. Hassanali, J. Githure, F.W. Iraqui, G.M. Mungai, W. Kraus, W.M. Kofi-Tsekpo. *Fitoterapia* 78, 455-459.

51. "Discriminative feeding behavour of *Anopheles gambiae s.s.* on endemic plants in western Kenya" (**2007**). H. Manda, L.G. Gougagna, B. Nyandat, B.W. Kabiru, R.R. Jackson, W.A. Foster, J.I. Githure, J.C. Beier and A. Hassanali. *Journal of Medical & Veterinary Entomology* 21, 103-111.

52. "Repellency of essential oils of some plants from the Kenyan coast against *Anopheles gambiae*" (**2005**). B. J. O. Odalo, M.O. Omolo, H. Malebo, J. Angira, P.M. Njeru , I.O. Ndiege and A. Hassanali. *Acta Tropica* 95, 210-218.

53. "Fumigant toxicity of the essential oils of some African plants and constituents of *Conyza newii* (Compositeae) against *Anopheles gambiae* sensu stricto" (**2005**). Maurice O. Omolo, Denis Okinyo., Isaiah O. Ndiege, Wilber Lwande, and Ahmed Hassanali. *Phytomedicine Research* 12, 241-6.

54. "Feeding and survival of the malaria vector *Anopheles gambiae* on plants growing in Kenya" (**2004**). D.E. Impoinvil, J.O. Kongere, W.A. Foster, B.N. Njiru, G.F. Killeen, J.I. Githure, J.C. Beier, A. Hassanali and B.G.J. Knols. *Medical and Veterinary Entomology* 18: 108-115.

55. "Mediation of oviposition site selection in the African malaria mosquito *Anopheles gambiae* (Diptera: Culicidae) by semiochemicals of microbial origin" (**2004**). L.A. Sumba, T.O. Guda, A.L. Deng, A. Hassanali, J.C. Beier and B.G.J. Knols. *International Journal of Tropical Insect Science* 24-3: 260-265.

56. "Daily oviposition patterns of the African malaria mosquito *Anopheles gambiae* Giles (Diptera: Culicidae) on different types of aqueous substrates" (**2004**). L.A. Sumba, K. Okoth, A.L. Deng, J. Githure, B.G.J. Knols, J.C. Beier and A. Hassanali. *Journal of Circadian Rhythms* **2**:6.

57. "Repellency of essential oils of some Kenyan plants against *Anopheles gambiae*" (**2004**). M.O. Omolo, D. Okinyo, I.O. Ndiege, W. Lwande, A. Hassanali. *Phytochemistry* 65, 2797-2802.

58. "Field efficacy of thermally expelled or live potted repellent plants against African malaria vectors in western Kenya" (**2003**). Aklilu Seyoum, Gerry F. Killeen, Ephantus W. Kabiru, Bart G.J. Knols and Ahmed Hassanali. *Tropical Medicine and International Health*, 8: 1005-1011.

59. "Traditional use of mosquito repellent plants in Western Kenya and their evaluation in semi-field experimental huts against *Anopheles gambiae*. 1. Ethnobotanical studies and application by thermal expulsion and direct burning" (**2002**). A. Seyoum, K. Palsson, S. Kung'a, E.W. Kabiru W. Lwande, G.F. Killeen, A. Hassanali and B.G.J. Knols *Trans. Roy. Soc. Trop. Med. Hyg.* 96, 225-31.

60. "Repellency of live potted plants against *Anopheles gambiae* from human baits in semi-field experimental huts" (**2002**). A. Seyoum, E.W. Kabiru W. Lwande, G.F. Killeen, A. Hassanali and B.G.J. Knols. *The American Journal of Tropical Medicine and Hygiene.* 67, 191-5.

61. "Repellent Activities of Stereoisomers of *p*-Menthane-3,8-diols against *Anopheles gambiae*" (**2002**). S.S. Barasa, I.O. Ndiege, W. Lwande and A. Hassanali. *Journal of Medical Entomology*, 39, 736-741.

62. "Cuticular component pattern analysis for taxonomic differentiation of phlebotomine sandfly species (Diptera: prychodidae) in Kenya" (**1998**). H. Mahamat and A. Hassanali. *Journal of Medical Entomology*, 35(5), 778-781.

63. "Characterisation of Phlebotomine Sandflies (Diptera, Psychodidae) of Kenya using isoenzyme analysis" (**1992**). H. Mahamat, A. Hassanali, M. Mutinga, S. Mihok. *Acta entomologic bohemslovaka* 89, 351-356.

64. "Isozyme analysis of Kenya Phlebotomine sandflies (Diptera: Psychodidae) by isoelectric focussing (1EF) on Pharmacia phast system" (**1992**). Mahamat H., Hassanali A., Morgan H., Mutinga M. J. and Mihok S. *Biochem. Syst. Ecology* 20, 593-596.

TSETSE & TICKS

65. "Optimizing modes of inoculation of *Rhipicephalus* ticks (Acari: Ixodidae) with a mitosporic entomopathogenic fungus in the laboratory" (**2010**). Felix Nchu, N.K. Maniania, A. Hassanali and J.N.Eloff. *Vet. Parasitology,* DOI10.1007/s10493-009-9330-7.

66. "New antitrypanosomal tetranortriterpenoids from *Azadirachta indica*" (**2010**). Mercy Githua, Ahmed Hassanali, Joseph Keriko, Grace Murilla, Mary Ndungu and Gathu Nyagah. *African Journal of Complementary and Alternative Medicines*, **7** (3).

67. "Release kinetics of a synthetic tsetse allomone derived from waterbuck odour from a tygon silicon dispenser under laboratory and semi field conditions". **(2009)** Sham P.M., Shiundu P.M., Gikonyo N.K., Hassanali A. and Saini R.K. *Journal of Agricultural & Environmental Sciences* 6, 625– 636.

68. "The use of a semiochemical bait to enhance exposure of *Amblyomma varieagatum* (Acari: Ixodidae) to *Metarhizium anisopliae* (Ascomycota: Hypocreales) **(2009).** Felix Nchu, N.K. Maniania, A. Toure, A. Hassanali and J.N.Eloff, *Vet. Parasitology,* 160, 279-284.

69. "Prospects for developing odour baits to control *Glossina fuscipes* spp., the major vector of human African Trypanosomiasis" **(2009**) Maurice O. Omolo, Ahmed Hassanali, Serge Mpiana, Johan Esterhuizen, Jenny Lindh, Mike J. Lehane, Philippe Solano, Jean Baptiste Rayaisse, Glyn A.Vale, Steve J. Torr, Inaki Tirados. *PLOS Negl Trop Dis* 3(5): e435. doi:10.1371/journal.pntd.0000435

70. "4-Alkyl-substituted analogue of guaiacol shows greater repellency to Savannah tsetse (*Glossina* spp.)" (**2007).** Rajinder K.Saini and Ahmed Hassanali. *Journal of Chemical Ecology*, 33, 985-995.

71. "Performance of a prototype baited-trap in attracting and infecting the tick *A. variegatum* (Acari: Ixodidae) in field experiments" (**2006**). Maranga, R.O., Hassanali, A. Kaaya, G.P., and Mueke, J.M. *Experimental and Applied Acarology* 38: 2110-218.

72. "Effects of combining the fungi *Beauveria bassiana* and *Metarhizium anisopliae* on the mortality of the tick *Amblyomma variegatum* (ixodidae) in relation to seasonal changes" (**2005**). R.O. Maranga, G.P. Kaaya, J.M. Mueke and A. Hassanali. *Mycopathologia* 159:4 527 – 532.

73. "Attractive and repellent host odours guide ticks to their respective feeding sites" (**2004**). W. Wanzala, S.F.K. Noel, S. Gule and A. Hassanali. *Chemoecology* Vol. 14: 229-232.

74. "Responses of *Glossina morsitans morsitans* to blends of electroantennographically active compounds in the odors of its preferred (buffalo and ox) and nonpreferred (waterbuck) hosts in a two-choice wind tunnel" (**2003**). N.K. Gikonyo, A. Hassanali, P.G.N. Njagi and R.K. Saini *Journal of Chemical Ecology*, 29: 2331-2345.

75. "Attraction of *Amblyomma variegatum* (Fabricius, 1794) to the attraction-aggregation-attachment-pheromone with or without CO_2 in the field" (**2003**). R.O. Maranga, A. Hassanali, G.P. Kaaya and J.M. Mueke *Journal of Experimental and Applied Acarology* 29, 121-130.

76. "Odour composition of preferred (Buffalo and Ox) and nonpreferred (waterbuck) hosts of some savanna tsetse flies" (**2002**). N. K. Gikonyo, A. Hassanali, P.G.N. Njagi, P.M. Gitu and J.O. Midiwo *Journal of Chemical Ecology*. 28, 969-981.

77. "Cattle and *Amblyomma variegatum* odours used in host habitat and host finding by the tick parasitoid, *Ixodiphagus hookeri*" (**2000**). Demas F.A., Hassanali A., Mwangi E.N., Kunjeku E.C. and Mabveni A.R. *Journal of Chemical Ecology,* 26, 1079-1093.

78. "Behaviour of *Glossina morsitans morsitans* Westwood (Diptera: Glossinidae) on waterbuck *Kobus defassa* and feeding membranes smeared with waterbuck sebum indicates the presence of allomones" (**2000**). N.K. Gikonyo, A.Hassanali, P.G.N.Njagi, and R.K.Saini. *Acta Tropica,* 77, 295-303.

79. "*Gynandropsis gynandra* essential oil and its constituents as tick (*Rhipicephalus appendiculatus*) repellents (**1999**). Lwande w., Ndakala A.J., Hassanali A., Moreka L., Nyandat E., Ndungu M., Amiani H., Gitu P.M. Malonza M.M. & Punyua D.K. *Phytochemistry*, 50, 401-405.

80. "Effects of fly abundance on catch index of traps *for Glossina fuscipes fuscipes* (Diptera: Glossinidae)" (**1998**). Muhigwa J.-B.B., Saini R.K. and Hassanali A. *Journal of Medical Entomology* 35(2), 148-152.

81. "The chemoecological role of mammalian urine in host-location by tsetse, *Glossina* spp. (Diptera:Glossinidae) : An appraisal" (**1996**). L. Chuka Madubunyi, A. Hassanali, W. Ouma, D. Nyarango and J. Kabii. *J. Chem. Ecol*. 22, 1187-1199.

82. "Identification of the major components of the larviposition pheromone from the larvae of tsetse flies *Glossina morsitans morsitans* Westwood and *G. morsitans centralis*" (**1996**). R.K. Saini, A. Hassanali, J. Andoke, P. Ahuya and W.P. Ouma. *J. Chem. Ecol*. 22, 1211-1220.

83. "*Cleome monophylla* essential oil and its constituents as livestock tick (*Rhipicephalus appendiculatus*) and maize weevil (*Sitophilus zeamais*) repellents" (**1995**). Ndungu M., Lwande W., Hassanali A., Moreka L. Chhabra S.C., Amiani H. and Achieng G. *Entomol. Exp. Applic*. 76, 217-222.

84. "Repellent and acaricidal properties of *Ocimum suave* against *Rhipicephalus*

appendiculatus ticks" (**1995**). Mwangi E.N., Hassanali A., Essuman S., Nyandat E., Moreka L. and Kimondo M. *Experimental and Applied Acarology* 19, 11-18.

85. "Close range responses of tsetse flies *Glossina morsitans* morsitans Westwood (Diptera: Glossinidae) to host kairomones" (**1993**). Saini R. K., Hassanali A., Ahuya P., Andoke, J. and Nyandat E. *Discovery & Innovation*, 5(2), 149-153.

86. "Olfactory sensitivity of tsetse flies to phenolic kairomones" (**1992**). R.K. Saini & A. Hassanali. *Insect Sci. Appl.* 13(1), 95-104.

87. "Augmentation of Host's Naturally Acquired Immunity by Solubilised Membrane Bound Proteins of the Tick *Rhipicephalus appendiculatus* (**1992**). S. Essuman, A. Hassanali, M. Nyindo & E. N. Ole-Sitayo. *J. Parasitol*. 78,466-70.

88. "The origin of phenolic tsetse attractants from host urine: studies on the pro-attractants and microbes involved" (**1990**). Matilda Okech and Ahmed Hassanali. *Insect Sci. & Appl.*, 11 (3), 363-368.

89. "Antennal Responses of Tsetse to Analogues of the Attractant 1-octen-3-ol." (**1989**). R.K. Saini, A. Hassanali and R.D. Dransfield. *Physiol. Entomol.* 14(1), 85-90.

90. "Humidity effects on the response of *Argas persicus* (Oken) to guanine, an assembly pheromone of Ticks" (**1989**). A. Hassanali, E. Nyandat, F.A. Obenchain, D.A. Otieno and R. Galun. *J. Chem. Ecol.* 15(3) 791-797.

91. "The role of 4-methylphenol and 3-n-propylphenol in the attraction of tsetse flies to buffalo urine" (**1988**). M.L. Owaga, A. Hassanali and P.G. McDowell. *Insect Sci. Appl*. 9(1), 95-100.

92. "Identification of tsetse attractants from excretory products of a wild host animal, *Syncerus caffer*" (**l986**). A. Hassanali, P.G. McDowell, M.A. Owaga and R.K. Saini. *Insect Sci. Applic.* 7(1), 5-9.

93. "Activity of the diastereoisomers of 13, 23-dimethylpentatriacontane, the sex pheromone of *Glossina pallidipes* and comparison with the natural pheromone". (**l985**). P.G. McDowell, A. Hassanali and R.D. Dransfield. *Physiological Entomology*, 10, l983-l90.

94. "Identification of guanine as an assembly pheromone of ticks" (**l985**). D.A. Otieno, A. Hassanali, F. Obenchain, A. Sternberg and R. Galun. *Insect Sci. Applic*. 6: (6), 667-670.

PLANT PESTS & STRIGA CHEMICAL ECOLOGY & CONTROL

95. "Responses of the blister beetle *Hycleus apicicornis* to visual stimuli" (**2011**) Lefulesele Lebesa, Zeyaur R Khan, Ahmed Hassanali, John A Pickett, Toby JA Bruce, Mathew Skellern and Kerstin Kruger, *Physiological Entomology,* 36, 220-229. (DOI: 10.1111/j.1365-3032.2011.00787.x).

96. "Isoschaftoside, a C-glycosylflavonoid from *Desmodium uncinatum* root exudate, is an allelochemical against the development of Striga" (**2010**). Antony M. Hooper, Muniru K. Tsanuo, Keith Chamberlain, Kay Tittcomb, Julie Scholes, Ahmed Hassanali, Zeyaur R. Khan, John. A. Pickett. *Phytochemistry* 71, 904-908.

97. "New genetic opportunities from legume intercrops for controlling *Striga* spp. parasitic weeds" **(2009)** Antony M. Hooper, Ahmed Hassanali, Keith Chamberlain, Zeyaur Khan, John A Pickett. *Pest Manag Sci* 2009; **65**: 546–552.

98. "Evaluation of farmers' field days as a dissemination tool for push-pull technology in western Kenya" (**2009**). David Amudavi, Zeyaur Khan, Japhother Wanyama, Charles Midega, Jimmy Pittchar, Ahmed Hassanali and John Pickett. *Crop Protection,* 28, 225-235.

99. "Integration of edible beans (*Phaseolus vulgaris* L.) into the push pull technology developed for stemborer and *Striga* control in maize-based cropping systems (**2009**). Khan Z.R., Midega C.A.O., Wanyama J.M., Amudavi D.M., Hassanali A., Pittchar J. and Pickett J.A. *Crop Protection* 28, 997–1006.

100. "Assessment of technical efficiency of farmer teachers in the uptake and dissemination of push–pull technology in Western Kenya" (2009). Amudavi D.M., Khan Z.R., Wanyama J.M., Midega C.A.O., Pittchar J., Nyangau I.M., Hassanali A. and Pickett J.A. *Crop Protection* 28, 987–996.

101. "Evaluation of farmers' field days as a dissemination tool for push-pull technology in western Kenya" (2009). David Amudavi, Zeyaur Khan, Japhother Wanyama, Charles Midega, Jimmy Pittchar, Ahmed Hassanali and John Pickett. *Crop Protection,* 28, 225-235.

102. "On-farm evaluation of the 'push-pull' technology for the control of stem borers and striga weed on maize in western Kenya" (2008). Khan Z.R., Midega, C.A.O., Amudavi, D.M., Hassanali, A. and Pickett, J. *Field Crops Research* 106, 224-233.

103. "*Desmodium* species and associated biochemical traits for controlling *Striga* species: present and future prospects" (**2008).** Khan Z.R., Pickett, J. A., Hassanali, A., Hooper, A.M. and Midega, C.A.O. *Weed Research* 48, 1-5.

104. "Assessment of different legumes for the control of *Striga hermonthica* in maize and sorghum" (**2007).** Zeyaur R. Khan, Charles A.O. Midega, Ahmed Hassanali, John A. Pickett, and Lester Wadhams. *Crop Protection* 26, 998-1005.

105. "C-Methylated and C-prenylated isoflavonoids from root extract of *Desmodium uncinatum",* (**2007**). Salome M. Guchu, Abiy Yenesew, Muniru k. Tsanuo, Nicholas Gikonyo, John A. Pickett, Antony M. Hooper and Ahmed Hassanali. *Phytochemistry* 68 (5), 646-651.

106. "Behaviour and biology of *Chilo partellus* (Swinhoe) on *Striga hermonthica* (Del.) Benth. Infested and uninfested maize plants" (**2007**). Hassan M. Mohamed, Zeyaur R. Khan, Jones M. Mueke, Ahmed Hassanali, Eunice Kairu and John A. Pickett. *Crop Protection* 26, 998-1005.

107. "Management of witchweed, *Striga hermonthica*, and stemborers in sorghum, *Sorghum bicolor*, through intercropping with greenleaf desmodium, *Desmodium intortum*" (2006). Khan, Z.R., Midega, C.A.O., Hassanali, A., Pickett, J.A., Wadhams, L.J., Wanjoya, A. *International Journal of Pest Management* 52(4), 297-302.

108. "Combined control of *Striga hermonthica* and stemborers by maize–*Desmodium* spp. intercrops (**2006**). Khan Z. *R.,* Pickett J. A., Wadhams L. J., Hassanali A. and Midega C. A. O. *Crop Protection* 25, 989–995.

109. "Periodicity in the quantity and ratio of pheromone components in volatile emissions from virgin females of the spotted stalk borer moth *Chilo partellus* (Swinhoe)" (**2003).** Gikonyo, N.K., Lwande, W, Hassanali, A. and Lux, S.A. (2003) Periodicity in the *East Centr. Afr.*
J. Pharm. Sci. **6**, 36 - 42.

110. "Isoflavanones from the allelopathic aqueous root exudates of *Desmodium uncinatum*" (**2003**). Muniru K. Tsanuo, Ahmed Hassanali, Antony M. Hooper, Zeyaur Khan, Festus Kaberia, John A. Pickett and Lester J. Wadhams. *Phytochemistry,* 64: 265-273.

111. "Control of the witchweed *Striga hermonthica* by intercropping with *Desmodium spp.* and the mechanism defined as allelopathic" **2002**. Z.R. Khan, A. Hassanali, W.A. Overholt, T.M. Khamis, A.M. Hooper, J.A. Pickett, L.J. Wadhams and C.M. Woodcock *Jounal of Chemical Ecology* 28 (9) 1871-1885.

112. "Mechanisms of *Striga hermonthica* suppression by *Desmodium* spp." **2001**. Z.R. Khan, A. Hassanali, T.M. Khamis, J.A. Pickett and L.J. Wadhams. *The BCPC Conference – Weeds*, 10C-2, 895-900.

113. "Airborne volatiles from *Melinis minutiflora*, a non-host plant of the spotted stem borer" (**2000**). S.M.Kimani, S.C.Chhabra, W.Lwande, Z.R.Khan, A. Hassanali and J.A.Pickett. *J.Essent. Oil*, 12, 221-224.

114. "Intercropping increases parasitism of pests" (**1997**). Khan A.R., Ampong-Nyarko K., Chiliswa P., Hassanali A., Kimani S., Lwande W., Overholt W.A., Pickett J.A., Smart L.E., Wadhams L.J. and Wookcock C.M. *Nature,* 388, 631-632.

115. "An attractant for the banana weevil, *Cosmopolites sordidus*" (**1996**). I.O. Ndiege, W.J. Budenberg, Otieno D.O. and Hassanali A. *Phytochemistry* 42, 369-371.

116. "The distribution of monoterpene hydrocarbons in airborne volatiles from pseudostem of eight cultivated banana cultivars in East Africa" (**1996**). I.O. Ndiege, W.J. Budenberg,

Otieno D.O. and Hassanali A. *Bulletin of the Chemical Society of Ethiopia* 10 (1), 43-46.

117. "Three new flavonoids from the root of *Tephrosia emoroides* and their antifeedant activity against the larvae of the spotted stalk borer *Chilo partellus* (Swinhoe)" (1995). A.K. Machocho, W. Lwande, J.I. Jondiko, L.V.C. Moreka and A. Hassanali. *International J. of Pharmacognosy* 33 (3), 222-227.

118. "Proximity of release points of two pheromone components of the spotted stem borer, *Chilo partellus* in relation to trapping efficiency" **1994**. Lux S. A., Hassanali A., Lwande W., and Njogu F.N. *J. Chem. Ecol*. 20, 2065-2075.

119. "Volatile components of banana pseudostem of a cultivar susceptible to the banana weevil (*Cosmopolites sordidus*)" **1991**. Ndiege I. O., Budenberg W. J., Lwande W. and Hassanali A. *Phytochemistry,* 30 (12), 3929-3430.

120. "Feeding responses of *Chilo partellus* (Swinhoe) Lepidoptera: Pyralidae) larvae to sorghum plant phenolics and their analogues" **1991**. Torto B., Hassanali A., Saxena K. N. and Nokoe S. *J. Chem. Ecol*., 19, 67-78.

121. "Chemical aspects of *Chilo partellus* feeding on certain sorghum cultivars" **1990**. Torto B., Hassanali A. and Saxena K. N. *Insect Sci. applic*. 11(4/5), 649-655.

122. "Role of sorghum extract in eliciting oviposition on a non-host by sorghum shootfly, *Atherigona soccata* Rondani (Diptera)" **l987**. G.C. Unnithan, K.N. Saxena, M.D. Bentley and A. Hassanali. *Environ. Entomol*., 16, 967-970.

123. "Chemical basis of cowpea TVu 946 stem resistance to *Maruca testulalis*" **l985**. D.A. Otieno, A. Hassanali and P.W. Njoroge. *Insect Sci. Applic.* 6: (3), 259-262.

124. "The Preparation of Synthetic Analogues of Strigol". Gopala Gowda, Ahmed Hassanali, A.W. Johnson, John Knox, Sam Monaco, Zia Razavi and Gerald Rosebery. *J. Chem. Soc.* (Perkin) I, (**l98l**), l734-l743.

BIOPROSPECTING RESEARCH

125. "Antimicrobial activity of *Osyris lanceolata* extracts towards human pathogens" (2009). Peter O. Lomo, Edna A. Ooko, David Odee, Ahmed Hassanali. *Journal of Natural Products*, 2:55-63.

126. "Two new azadiron limonoids from *Turraea cornucopia"* **(2008).** Owino J.H. Odero, Mary Ndungu, Ahmed Hassanali. *Journal of the Kenya Chemical Society*, ISSN1811-5934, **5**, 43-49.

127. "Essential oil of *Ocimum gratissimum* (Labiatae) as *Sitophilus zeamais* (Coleoptera: Curculionidae) protectant" **(2008).** E.S. Aswalam, S.O. Emosairue and A. Hassanali,

African J. Biotech. 20, 3771-3776.

128. "Constituents of the essential oil of *Vernonia amygdalina* as maize weevil protectants" **2006**. E.F.Aswalam and A.Hassanali. *Trop. and Subtropical Agroecosystems* 6: 95-102.

129. "New mosquito larvicidal tetranortriterpenoids from *Turraea wakefieldii* and *Turraea floribunda*" **2004**. Mary W. Ndungu, Bakari Kaoneka, Ahmed Hassanali, Wilber Lwande, Antony M. Hooper, Francis Tayman, Oliver Zerbe and Baldwyn Torto. *Agricultural and Food Chemistry* 52, 5027-5031.

130. "Laboratory Evaluation of some east African Meliaceae as sources of larvicidal botanicals for *Anopheles gambiae*" **2004**. M. Ndungu, B. Torto, B.G.J. Knols and A. Hassanali. *International Journal of Tropical Insect Science* 24-4: 311-318.

131. "Ring A-seco mosquito larvicidal limonoids from *Turrea wakefieldii*" (**2003**). M. Ndung'u, A. Hassanali, Antony M. Hooper and S. Chhabra, Thomas A. Miller, Rowena L. Paul, Baldwyn Torto. *Phytochemistry*, 64: 817-823.

132. "Blend effects in the toxicity of the essential oil constituents of *Ocimum kilimandscharicum* and *Ocimum kenyense* (Labiateae) on two post-harvest insect pests" (**2001**). J. Bekele and A. Hassanali. *Phytochemistry,* 57, 385-391.

133. "Aromatic plants of Kenya IV: Volatile and some non-volatile constituents of the stem bark of *Synadenium compactum* N.E. Br, Var, *Compactum*" (**1990**). Mwangi J.W., Thoithi G.N., Addae-Mensah I., Achenbach H., Lwande W. and Hassanali A. *The East & Central African Journal of Pharmaceutical Sciences* 2, 5-7.

134. "Aromatic plants of Kenya: volatile constituents of *Sphylathus fuaveolens* and *S. bullatus*" (**1998**). Mwangi J.W., Achola K.J., Lwande W. and Hassanali A. *The East & Central African Journal of Pharmaceutical Sciences* 1, 24-26.

135. "Aromatic plants of Kenya III: Volatile and some non-volatile constituents of *Croton sylvaticus*" (**1998**). Mwangi J.W., Thoithi G.N., Addae-Mensah I., Achenbach H., Lwande W. and Hassanali A. *The East & Central African Journal of Pharmaceutical Sciences* 1, 41-43.

136. "The antifeedant activity of *Jatropha podagrica* roots" (**1998**). O.O.Aiyelaagbe, E.K. Adesogan, O.Ekundayo, and A. Hassanali. *Fitoterapia*, 69, 175-176.

137. "Aromatic plants of Kenya: volatile constituents of leaf oils of *Sphaeranthus suaveolens* (Forsk) D.C. and S. bullatus Mattf" (**1998**). Mwangi J.W., Achola K.J., Lwande W. and Hassanali A. *East and Central African Journal of Pharmaceutical Sciences*. 1, 24-26.

138. "Toxicity and protectant potential of camphor, a major component of essential oil of *Ocimum kilimandscharicum* (Labiatae) against four stored product beetles" Obeng-Ofori, D., Reichmuth, Ch., Jembere, B. and Hassanali, A. (**1998**). *International Journal of Pest Management* 44 (4), 203-209.

139. "Bioactivity of eugenol, a major component of essential oil of *Ocimum suave* (Willd) against four species of stored product Coleoptera" Obeng-Ofori, D., Reichmuth, Ch., Jembere, B. and Hassanali, A. (**1997**). *International Journal of Pest Management* 43 (1), 89-94.

140. "Evaluation of *Ocimum kenyense* (Ayobangira) as source of repellents, toxicants and protectants in storage against three major stored product insect pests". (**1997**). Bekele A.J., Obeng-Ofori D. and Hassanali, A. *Journal of Applied Entomology* 121 (3), 169-173.

141. "Biological activity of 1,8-ceniole, a major component of essential of *Ocimum kenyense* (Ayobangira) against stored product beetles" (**1997**). Obeng-Ofori D., Reichmuth Ch., Bekele J. and Hassanali A. *Journal of Applied Entomology* 121, 237-243.

142. "Evaluation of *Ocimum suave* (Willd.) as a source of repellents, toxicants and protectants in storage against three stored product insect pests" (**1996**). Bekele A.J., Obeng-Ofori D. and Hassanali A. *International Journal of Pest Management* 42, 139-142.

143. "A limonoid from *Turraea floribunda*" (**1996**). B. Torto, A. Hassanali, E. Nyandat and M.D. Bentley *Phytochemistry,* 42, 1235-1237.

144. "Products derived from the leaves of *Ocimum kilimandscharicum* (Labiatae) as post-harvest grain protectants against the infestation of three major stored product insect pests" (**1995**). B Jembere, D. Obeng-Ofori, A. Hassanali and G.N.N. Nyamasyo. *Bull. Entomol. Research* 85, 361-7

145. "Limonoids from *Turraea floribunda*" (**1995**). Baldwyn Torto, Michael D. Bentley, Ahmed Hassanali, Fu-Yung Huang, Leslie Gelbaum and Donald G. Venderveer. *J. Nat. Products,* 40, 239-243.

146. "Three new flavonoids from the root of *Tephrosia emoroides* and their antifeedant activity against larvae of the spotted stalk borer, *Chilo partellus* Swinhoe **(1995).** A. K. Machocho, W.Lwande, J.I.Jondiko, L.V. Moreka and A. Hassanali. *Pharmaceutical Biology*, 33, 222-227.

146. "Volatile components of *Heteromorpha trifoliata* (Wendle) Eckl. & Zey" (**1994**). Mwangi, J. W. Achola K. J., Lwande W. & Hassanali A. *Flavour and Fragrance J*. 9, 75-76.

147. "Composition of the essential oil of *Ocimum kiniense* sp vov Avobangira" (**1994**). Mwangi W., Lwande W. & Hassanali A. *Flavour & Fragrance J*., Vol.9, 75-76.

148. "Volatile constituents of essential oil of *Tarconeathus camphoratus* L" (**1994**). Mwangi, R., Achola K. J., Lwande W. & Hassanali A. *J. Essential Oil Res*. 6, 183-185).

149. "Constituents of the Essential Oil of *Blumea brevipes* (Oliv. & Hiern) Willd" (**1994**). J.W. Mwangi, K.J. Achola, W. Lwande, A. Hassanali and R. Laurent. *Flavour & Fragrance J., Vol*. 9, 233-235.

150. "Anti-parasitic compounds from East African Plants" (**1993)**. F. Bettarini, Borgonovi G.E., Fiorani T., Gagliardi I., Caprioli V., Massardo P., Jondiko I. J., Hassanali A., Nyandat E., Chapya A,. *Insect Sci. applic*. 14(1), 93-99.

151. "Composition of essential oil of *Plectranthus tenuiflorus* (Verke) Agnew" (**1993)**. Mwangi J. W. Lwande W. & Hassanali A. *Flavour and Fragrances J*. 8, 51-52.

152. "Two new prieurianin-class limonoids from *Turraea mombasana*" (**1993)**. Adul G. O., Bentley M.D., Benson B. W., Huang Fu-Y., Galbaum L. & Hassanali A. *J. Nat. Products* 56(8), 1205-1436.

153. "Constituents of *Helichrysum odoratissimum* (L.) Less" Lwande W., Hassanali A., Wanyama O. B., Ngola S. and Mwangi L. (**1993).** *J. Essential Oil Research* 5, 93-95.

154. "Mutangin, a new dihydroagarofuranoid sesquiterpene insect antifeedant from *Elaeodendron buchananii* (Loes)" (**1993)**. Tsanuo M. K., Hassanali A., Jondiko I. and Torto B. *Phytochemistry* 34 (3), 665-667.

155. "Antiparasitic compounds from east African plants: isolation and biological activity of anonaine, matricarianol, canthin-6-one and caryophyllene oxide" (**1993)**. F. Bettarini, G.E. Borgonovi, T. Fiorani, I. Gagliardi, V. Caprioli, P. Massardo, J.I.J. Ogoche, A. Hassanali, E. Nyandat and A. Chapya. *Insect Sci. Applic*. 14:1, 93-99.

156. "Constituents of *Commiphora rostrata* as maize weevil (*Sitophilus zeamais Motschulsky*) repellents" (**1992)**. Lwande W., Hassanali A., McDowell P.G., Moreka L., Nokoe S. K. and Waterman P.G. *Insect Sci. Appl.* 13(5), 679-683.

157. "Tetranortriterpenes from *Turraea Robusta* Guarke" (**1992)**. M. D. Bentley, F. Goal, M. S. Rajab, A. Hassanali. *J. Nat. Products* 55, 84-87.

158. "Essential oils of *Lippia* species in Kenya. IV; Maize weevil (*Sitophilus zeamais*) repellency and larvicidal activity." (**1992).** Mwangi J.W., Addae-Mensah I., Muriuki G., Munavu R. M., Lwande W. and Hassanali A. *Int. Journal of Crude Drug Research* 30, 9-17.

159. "Ormocarpin the 7,7"- ß-diglucoside of (2S,3R)-Chamaejasmin from *Ormocarpum kirkii* (Fabaceae)" (**1990)**. E. Nyandat, A. Hassanali, Y. de Vicente G. Multari and C. Galeffi *Phytochemistry,* 29, 2361-2364..

160. "Weevil Repellent Constituents of *Ocimum suave* Leaves and *Eugenia caryophyllata* Cloves used as Grain Protectants in Parts of East Africa" (**1990)**. Ahmed Hassanali, Wilber Lwande, Nicholas Ole-Sitayo, Lambert Moreka, Sagary Nokoe and Andrew Chapya. *Discovery & Innovation*, 2, 91-95.

161. "Taste Sensilla Responses to Limonoids, Natural Insect Antifeedants" (**1989)**. S.M. Waladde, A. Hassanali and S.A. Ochieng. *Insect Sci. appl*. 10 (3), 301-302.

162. "A new limonoid from *Turrea robusta*" (**1988**). M. S. Rajab, M.D. Bentley, A. Hassanali and A. Chapya. *Phytochemistry* 27(7), 2353-2355.

163. "Highly active antifeedants against Coleopteran pests" (**1988**). D.C. Griffiths, A. Hassanali, L. A. Merritt, A. Mudd, J. A. Pickett, S. J. Stah, L.E. Swart, L. J. Wadhams and C.M. Woodcock. Brighton Crop Protection Conference - Pests and diseases, 8C-30 p 1041-1046.

164. "Structure-Activity studies of modified Citrus Limonoids as Antifeedants for the Colorado Potatoe Beetle, *Leptinotarsa decemlineata* (Say)" (**1988**). Michael D. Bentley, Mohamed S. Rajab, A. Randall Alford, Michael J. Mendel and Ahmed Hassanali. *Entomol. Exp. et Appl.* 49(3), 189-193.

165. "Pedonin, a novel tetranortriterpenoid insect antifeedant from *Harrisonia abyssinica* (**l987**). Ahmed Hassanali, Bentley M.D., Slawin A.M.Z., William D.J., Shepard R.N. and Chapya A. *Phytochemistry* 26 (2): 573-4.

166. "Insect feeding deterrents from *Tephrosia elata* deffers" (**l987**). M.D. Bentley, A. Hassanali, W. Lwande, P.E.W. Njoroge. *Insect Sci. Appl*. 8, 85-8.

167. "A new pterocarpan from the roots of *Tephrosia hildebrandtii*" (**l987**). W., Lwande, M.D. Bentley, F.N. Lugema, A. Hassanali and E. Nyandat. *Phytochemistry* 26 (8), 2425.

168. "The structure of hildercarpin, an insect antifeedant 6a-hydroxypterocarpan from the roots of *Tephrosia hildebrandtii* Vatke" (**l986**). W. Lwande, M.D. Bentley and A. Hassanali. *Insect Sci. Applic* 7(4), 501-3.

169. "Studies on limonoid insect antifeedants" (**l986**). Ahmed Hassanali, M.D. Bentley, E.N. Ole Sitayo, Njoroge, P.E.W. and Yatagai, M. *Insect Sci. Applic.* 7 (4), 495-9.

170. "Antifeedants: a new concept for control of barley yellow dwarf virus in winter cereals" (**l986**). G.W. Dawson, D.G. Griffiths, A. Hassanali, J. Pickett, R.T. Plumb, B.J. Pye and C.M. Woodcock. l986 British Crop Protection Conference - Pests and Diseases p. 1001-7.

171. "8-C-Prenylated flavones from the roots of *Tephrosia hildebrandtii"* (**l986**). W. Lwande, A. Hassanali, M.D. Bentley and F. Delle Monache. *J. Nat. Prod*. 49, 1157-1158.

172. "A new 6a-hydroxypterocarpan with insect antifeedant and antifungal properties from the roots of *Teprosia hildebrandtii* vatke" (**l985**). W. Lwande, A. Hassanali, R.W. Njoroge, Bentley M.D., Delle Monache and J.I. Jondiko. *Insect Sci. Applic.* 6 (4), 537-41.

173. "9-Acridone insect antifeedant alkaloids from the bark of *Tichlea trichocarpa*" (**l983**). W. Lwande, T. Gebreyesus, A. Chapya, A. Hassanali and S. McFoy, *Insect Sci. and Appl*., 4 (4), 393-5.

174. "Viomycin. Part II. The Structure of the chromophore" (**l972**). B.W. Bycroft, D.

Cameron, L.R. Croft, A. Hassanali and A.W. Johnson. *J. Chem. Soc.* 827-834.

175. "The total Structure of Capreomycin IB, a tuberculostatic peptide Antibiotic" (**l971**). B.W. Bycroft, D. Cameron, A. Hassanali, A.W. Johnson and T. Webb. *Experientia* 203.

176. "The Total Structure of Viomycin, a tuberculostatic peptide antibiotic" (**l97l**). B.W. Bycroft, D. Cameron, L.R. Croft, A. Hassanali, A.W. Johnson and Tessa Webb. *Nature,* 27, 510.

177. "The Structure and Synthesis of Barakol" (**l970**). B.W. Bycroft, Ahmed Hassanali, A.W. Johnson and T.J. King. *J. Chem. Soc.*. C. 686-689.

178. "Synthesis of a model relating to the chromophores of Capreomycin and Viomycin" (**l969**). B.W. Bycroft, D. Cameron, A. Hassanali and A.W. Johnson. *Tet Letters*. 2539-2541.

179. "Barakol, a novel dioxaphenalene derivative from *Cassia siamea*" (**l969**). A. Hassanali, T.J. King and S.C. Wallwork. *Chemical Comm.* 678-679.

180. "The Chromophore and Partial Structure of Viomycin" (**l968**). B.W.Bycroft, D. Cameron, L.R. Croft, A. Hassanali, A.W. Johnson and Tessa Webb. *Tet. Letters*. 5901-5904.

OTHER RESEARCH PAPERS

181. "Comparison of volatile blends and gene sequences of two isolates of *Metarhizium anisopliae* of different virulence and repellency toward the termite *Macrotermes michaelseni"* (2011). David M. Mburu, Mary W. Ndung'u, N. K. Maniania and Ahmed Hassanali. *The Journal of Experimental Biology*, doi:10.1242/jeb.050419, page 1-7.

182. "High fertilizer rates increase susceptibility of tea to water stress" (2010). Erick K. Cheruiyot, Louis M. Mumera, Wilson K. Ng'etich, Ahmed Hassanali, Francis N. Wachira. *Journal of Plant Nutrition*, 33 (1), 115-129.

183. "Relationship between virulence and repellency of entomopathogenic isolates of *Metarhizium anisopliae* and *Beauveria bassiana* to the termite *Macrotermes michaelseni*" **(2009)** D.M. Mburu, L. Ochola, N.K. Maniania, P.G.N. Njagi, L.M. Gitonga, M.W. Ndung'u, A.K. Wanjoya, A. Hassanali, *J. Insect Physiology*, 55, 774-780.

184. "Shoot epicatechin and epigallocatechin contents respond to water stress in tea (*Camellia sinensis* L.)" (**2008**). Cheruiyot, E., Mumera, L.M., Ng'etich, W.K., Hassanali, A. and Wachira, F. and Wanyoko, J.K. *Biosci. Biotechnol. Biochem.* 72(5), 1219-1226.

185. "Polyphenols as potential indicators of drought tolerance in tea (*Camellia sinensis* L.) (**2007**). Cheruiyot, E., Mumera, L.M., Ng'etich, W.K., Hassanali, A. and Wachira, A. *Biosci. Biotechnol. Biochem.* 71(9), 2190-2197.

186. "Ethnoveterinary medicine: a critical review of its evolution, perception, understanding and the way forward" (**2005**). Wanzala W, Zessin K H, Kyule N M, Baumann M P O,

Mathias E and Hassanali A *Livestock Research for Rural Development.* 17, Article #119. http://www.cipav.org.co/lrrd/lrrd17/11/wanz17119.htm

187. "The Use of reverse-phase C_{18}-bonded silica for trapping, concentration and analysing headspace volatiles" (**1994**). Ndiege I. O., Otieno O. O., Budenberg W. J. and Hassanali A. *J. Sci. Food & Agr.* 64, 47-52.

188. "A Novel Epoxide from indanone derivatives" (**l977**). Ahmed Hassanali. *University of Dar es Salaam Science Journal* Vol. 1 & 2, 45-52.

189. "Isolation of oil of clove and the separation of eugenol and acetyl eugenol" (**l976).** M.S. Ntamila and A. Hassanali. *J. Chem. Education* 53, p. 263.

190. "Reaction of Lead Tetraacetate. Formation of acylamines from primary carboxamides". B. Acott, A.L.J. Beckwith and A. Hassanali. *Aust. J. Chem.* **l968**. 21, l85-95.

191. "Reactions of Lead Tetraacetate. Formation of carbamic acid esters from primary carboxamide" (**l968**). B. Acott, A.L.J. Beckwith and A. Hassanali. *Aust. J. Chem.* 21, l967-105.

192. "Reaction of Lead Tetraacetate with Primary amides. Formation of alkyl carbamates" (**l965**). B Acott, A.L.J. Beckwith and A. Hassanali. *Tet. Letters*, p. 4039-45.

IX CONFERENCE & SYMPOSIA PROCEEDINGS

193. "Identification of interacting mosquito larvicidal compounds from *Lantana viburnoides var. kisi* by subtraction bioassays" **(2009).** Innocent E., Cossam, C.J., Gikonyo, N.K., Nkunya, M.H.H and Hassanali A. In, Traditional and Alternative Medicine: Research and Policy Perspectives. Eds De Silva, T., Bahorun, T., Sahu, M. and Huong, L.M. Publisher, Daya House, New Delhi. Part II, Phytochemistry, Chapter 38, pp 594. ISBN-81-7035-614-8.

194. "Plant volatiles yielding new ways to exploit plant defence" (**2006**). John A. Pickett, Toby J.A. Bruce, Keith Chamberlain, Ahmed Hassanali, Zeyaur R. Khan, Michaela C. Mathes, Johnathan A. Napier, Lesley E. Smart, Lester J. Wadhams and Christine M. Woodcock. *Marcel Dicke and Willem Takken (eds), Chemical ecology: from gene to ecosystem*, pp 161-173. In *Chemical Ecology: From Gene to Ecosystem* (Edited by M. Dicke and W. Takken). Wageningen UR Frontis Series. Springer, Dordrecht, the Netherlands. ISBN 1402047924.

195. "Individual-based model of mosquito choices up odour plumes to alternative hosts" **(2005).** Nedorezov L.V., Hassanali A., Sadykov A.M. Proceedings of the Fifth European Conference on Ecological Modelling ECEM 2005 (A.S. Komarov Editor), Pushchino, Russia, 19-23 September P. 136-137.

196. "Mosquito mating behaviour" (**2004**). Willem Takken, Carlo Costantini, Guimogo Dolo,

Ahmed Hassanali, N'Fale Sagnon and Elie Osir. Proceedings of the joint WHO/TDR, NIAID, IAEA and Frontis Workshop on Bridging Laboratory and Field Research for Genetic Control of Disease Vectors, Nairobi, Kenya 14-16 pp. 183-188.

197. "The Effect of the desert locust, *Schistocerca gregaria* (Forskål), on the productivity of rangeland in the Red Sea coast of the Sudan and its population management through environment-friendly control tactics" (**1998**). Bashir M., El Rahim S.I.A. & Hassanali A. In: Squires V.R. & Sidahmed A.E. (Eds) Sustainable use of rangelands into the twenty-first century. IFAD Series: Technical Reports pp. 321-328.

198. "An integrated management of cereal stem borers and Striga weed in a maize-based cropping system in Africa. In Maize production technology for the future: Challenges and opportunities" (**1998).** Khan, Z., W. A. Overholt, A. Hassanali, P. Chiliswa, J. Wandera, F. Muyekho, J. A. Pickett, L. E. Smart and L. J. Williams. Proceedings of the sixth Eastern and Southern Africa Regional Maize Conference Addis Ababa 21-25 September CIMMYT and EARO. pp. 190-193.

199. "Rationale & Scope of Semiochemical Research on the Desert Locust at ICIPE" (**1994).** Hassanali A. & Mahamat H.". In: The Proceedings of Effective Networking of Research & Development of Environmentally sustainable Locust Control & Methods, ICIPE Science Press, p.5-12.

200. "Semiochemical modulation of gregarious behaviour in the Desert Locust" (**1994**). Ahmed Hassanali. In: New Strategies for Locust Control, Eds. H. Rembold, J. A. Benson, H. Franzen, B. Weickel, T. A. Schulz, ASTAF, Bonn, Germany, p53-56.

201. "Effective & Sustainable Ecotechnology Development" (**1993**). Saini R. K. & Hassanali A. In: Proceedings of community-based environmentally safe pest management. 1994 (eds: R. K. Saini and P. Haskell). ICIPE Science Press, Nairobi, p49-64.

202. "Anti-pest Secondary Metabolites from African plants" (**1989**). Ahmed Hassanali and Wilber Lwande. In: Insecticides of Plant Origin, Eds J.T. Arnason, B.J.R. Philogene and P. Morand. *ACS Symposium Series* 387, pp 78-94.

203. "Comparison of the insect antifeedant activities of some limonoids" (**l987**). A. Hassanali and M.D. Bentley. In: Natural pesticides from the neem tree (*Azadirachta indica*) A. Juss and other tropical plants, Eds. H. Schmutterer and K.R.S. Ascher. GTZ GmbH, Eschborn.

204. "Structure-activity studies on Acridone Insect Feeding Deterrents" **(1984)**. A. Hassanali, W. Lwande and T. Gebreyesus. Proceedings of the 2nd International Neem Conference, Ranischholzhasasen, 25-28 May, l983, Eds. H. Schmutterer and K.R.S. Ascher, Eschborn l984, pp. 75-80.

205. "Strigol analogues: synthetic achievements and prospects" (**l984**). Ahmed Hassanali. In: 'Striga: Biology and Control', Eds. E.S. Ayensu, H. Doggett, R.D. Keynes, J. Martin-Lefeure, L.J. Musselman, C. Parker and A. Pickering. ICSU Press, pp. 125-182.

206. "The neem tree as a source of anti-pest agents" (**l983).** Ahmed Hassanali. Proceedings of Africa seminar on the use and handling of agriculture and other pest control chemicals, Nairobi, pp. ll8-121.

207. "The sex-stimulant pheromone of tsetse *G. pallidipes* (Austen)" (**l98l).** Presented jointly with P.G. McDowell at the 17th Meeting of OAU/STRC International Council for Trypanosomiasis Research and Control, Arusha, Tanzania, Oct. l9 - 24, Publication No. 112 OAU/STRC.

X INVITED & REFEREED CHAPTER CONTRIBUTIONS

208. "*Desmodium* species and associated biochemical traits for controlling *Striga* species: present and future prospects" (**2008).** Khan Z.R., Pickett, J. A., Hassanali, A., Hooper, A.M. and Midega, C.A.O. Weed Research 48, 1-5.

209. "Integrated Pest Management: the push-pull approach for controlling insect pest and weeds of cereals and its potential for other agricultural systems incuding animal husbandry" (**2008**). Ahmed Hassanali, Hans Herren, Seyaur R. Khan, John A. Pickett and Christine M. Woodcock. *Philosophical Transactions of the Royal Society of London B. Special Issue on Sustainable Agriculture. Editors: Ian Crute, Howard Dalton, Chris Leaver and Jules Pretty*, B363, 611-621.

210. "Chemicals involved in post-germination inhibition of *Striga* by *Desmodium*: opportunities for utilizing the associated allelopathic traits" (**2007).** John A.Pickett, Zeyaur R. Khan, Ahmed Hassanali and Antony M. Hooper. In: Integrating New Technologies for *Striga* Control, Ed: Gebesia Ejeta and Jonathan Gressel, World Scientific, 61-70.

211. "Field developments on *Striga* control by *Desmodium* intercrops in a 'push-pull' strategy" (**2007**). Zeyaur R. Khan, Charles A.O. Midega, Ahmed Hassanali and John A.Pickett. In : Integrating New Technologies for *Striga* Control, Ed: Gebesia Ejeta and Jonathan Gressel, World Scientific, 241-252.

212. "Managing Polycropping to Enhance Soil System Productivity: A Case Study from Africa" (**2006**). Khan, Z. R., Hassanali, A. and Pickett, J. A. In Biological Approaches to Sustainable Soil Systems. *CRC Press New York* pp. 575-586.

213. "Chemical Ecology of Locusts and Related Acridids" (**2005**). A. Hassanali, P.N. Njagi and M. Bashir. *Annual Review of Entomology Vol,* 50: 223-245.

214. "Grasshoppers & Locusts" Hassanali A., Torto B. In: Pheromones of non-lepidopteran insects associated with agricultural plants (**1999**). Ed: Jim Hardie & Albert K. Minks, CABI Publishing, pp. 305-328.

215. "Progress in the search for anti-arthropod botanicals" Torto B. and Hassanali A. In: Recent Research Development in Phytochemistry, Vol. 1, (**1997**). S.G. Pandalai (Man Ed), Trivandrum.

216. "Development of plant-derived antifeedants for crop protection" (**l987**). J.A. Pickett, G.W. Dawson, D.C. Griffiths, A. Hassanali, L.A. Merritt, A. Mudd, M.C. Smith, L.J. Wadhams, C.M. Woodcock and Zhang Zhong-ning. In: Pesticide Science and Biotechnology, Ed. R. Greenhalgh and T.R. Roberts. Blackwell Scientific Publications. pp. 125-128.

XI PATENTS

12 in all, including the following recent ones:

1. Compositions for attracting blood feeding insects. PCT Application jointly by *icipe* and Kenyatta University. Co-inventors: Maurice Omolo (KU), Ahmed Hassanali (KU, *icipe*), Isaiah Ndiege (KU), Peter Njagi (*icipe*) and Basilio Njiru (*icipe*)

2. Compositions for repelling blood feeding insects. PCT Application. Co-inventors: Maurice Omolo (KU), Ahmed Hassanali (KU, *icipe*), Isaiah Ndiege (KU), Peter Njagi (*icipe*) and Basilio Njiru (*icipe*)

3. C-seco-limonoids for treating trypanosomiasis and related parasitic diseases. KIPI (Kenya Industrial Property Institute) Application. Co-inventors: Mercy Githua (JKUAT), Ahmed Hassanali (KU), Grace Murilla (Trypanosomiasis Reseach Center, KARI) and Mary Ndung'u (JKUAT).

XII PhD STUDENTS & POSTDOCTORAL INTERNS MENTORED

Major Supervisor of > 40 PhD students from Africa.
Co-supervisor of 12 other PhD students & ~35 MSc students.
Currently co-supervisor of 5 PhD students (to complete by 2012).

Postdoctoral Interns: 8 from different parts of Africa.

XIII OTHER PROFESSIONAL CONTRIBUTIONS

- Treasurer (1970-71) and Secretary (1972-73) of the Tanzania Branch, (now defunct) East African Academy.
- Treasurer, African Academy of Sciences 1988 - 1994.
- Member, Chemistry Panel of Ministry of Education, Tanzania (concerned with curriculum development) in 1970's.
- Chemistry Chairman, National Examination Council, Tanzania early 1970's.
- Chairman, Chemistry Committee, National Bureau of Standards, Tanzania, 1977-1981.
- Book reviews:
  - Herbicides (Progress in Pesticide Biochemistry and Toxicology Vol.6, John Wiley & Sons, 1987) in *Insect Sci. Applic*. 9(3), 427-8, 1988.
  - Environmental Fate of Pesticides (Progress in Pesticide Biochemistry and Toxicology Vol.7, John Wiley & Sons, 1990) in *Insect Sci. Applic*, 1990, 11 (6), 917-918.
- "Protection of R & D Innovations: The Patent and Licensing System"; contribution to

Financial and Administrative Management of Research Projects in Eastern and Southern Africa (FAMESA) Manual on "Research and Development Institute-Client Relationship", December, 1990, ICIPE Science Press.

- Organisation of conferences: International Neem Conference (Nairobi, l986), CHEMRAWN (Nairobi, l988), Patent meetings (Nairobi, 1985 & l987), Chemistry Conference (Nairobi, l983), International Congress of Entomology in Durban, 2008, etc.
- Guest Editorials, "African Universities: Addressing the Crisis" *Discovery & Innovation*, 3 (4), 4-6, 1991; "Locusts and Aggregating Grasshoppers in Africa: Need for a Fresh Paradigm" *Discovery & Innovation*, 12 (1/2) 1-3, 2000.
- Editor, African Academy of Sciences Newsletter, The WHYDAH, 1992-3. Councillor of the International Society of Chemical Ecology from 1995-8.
- Served as a member of the Editorial Boards of Journal of Chemical Ecology and Insect Science and Application; currently on editorial board of Discovery & Innovation, Acta Tropica and International Journal of Tropical Insect Science.
- Elected and served as a member of the Council for the International Congresses of Entomology (2003-8).
- Currently, a member of the Editorial Review Panel of the African Initiative Research Program.

XV OTHER INTERESTS

Exploring multi-layered meaning of different messages of the Holy Qur'an; Classical supplications;'Sufi' philosophy and poetry; Philosophy, Science and Religion; Socio-economics of development and under-development.