

Bioefficacy of *Moringa oleifera* and *anacardium occidentale* against insect pests of watermelon (*Citrullus lanatus* Thumb) and their effects on watermelon fatty acid profile

F.O. Alao, T.A Adebayo, A.O Olaniran

References

ABDUL, D.A.S. (2007) *Economic importance of Moringa oleifera in Tafa Local Government Area of Niger State. NDE project.* Kaduna: Federal College of Forestry Mechanization.

ADEBAYO, T.A. (2003) *Efficacy of mixture formulations of synthetic and botanical insecticides in the control of insect pests of okra and cowpea: Ph.D. Thesis.* Ogbomoso: Ladoke Akintola University of Technology.

AKHTAR, Y., YEOUNG, V.R. and ISMAN, M.B. (2008) Comparative bioactivity of selected extracts from Meliaceae and some commercial botanical insecticides against two noctuid caterpillar. *Trichoplusia and Pseudaletia unipuncta. Phytochemistry Reviews*, vol. 7, pp. 77-88.

AKHTAR Y. and ISMAN, M.B. (2004) Comparative growth inhibitory and antifeedant effects of plant extracts and pure allelochemicals on four phytophagous insect species. *Journal of Applied Entomology*, vol. 128, pp. 32-38.

ALAO, F.O. (2009) *Insecticidal principle of allelochemicals derived from Tephrosia vogelii and petiverian alliacea on post flowering insect pests of cowpea: M. Tech Dissertation.* Ogbomoso: Ladoke Akintola University of Technology.

ALAO, F.O. (2015) Effects of plant extracts in the control of field insect pests associated with watermelon. Ph.D.thesis. Ladoke Akintola University of Technology, Ogbomoso, Nigeria, p273.

ALAO, F. O. and ADEBAYO, T. A. (2015) Comparative efficacy of Tephrosia vogelii and *Moringa oleifera* against insect pests of watermelon (*Citrullus lanatus* Thumb). *International letters of natural sciences*, vol. 36, pp. 71-78.

ALAO, F.O. et al (2016) Population density of insect pests associated with watermelon (*Citrullus lanatus* Thumb) in southern guinea savanna zone, Ogbomoso. *Journal of Entomology and Zoology Studies*, vol. 4, no. 4, pp. 257-260.

ALAVANJA, et al. (2004) Health effects of chronic pesticide exposure: cancer and neurotoxicity. *Annual Review of Public Health*, vol. 25, p. 155.

ALLWOOD, A.J. et al. (1999). Host plant record of fruit flies (*Diptera; Tephritidae*) in southeast Asia. *The Raffles Bulletin in zoology supplies*, vol. 7, 92 p.

ANJORIN, T.B. et al. (2010) Mineral composition of *Moringa oleifera* leaves, pods and seeds from two regions in Abuja, Nigeria. *International. Journal of Agriculture and Biology*, vol. 12, pp. 431-434.

ANJORIN, T.S. et al. (2010) Mineral composition of *Moringa oleifera* leaves, pods and seeds from two regions in Abuja, Nigeria. *International Journal of Agriculture Biology*, vol. 12, pp. 431-434.

ASOGWA, E.U. et al. (2007) Evaluation of cashew nut shell liquid (CNSL) as a potential natural insecticide against termites (soldiers and workers Castes). *Research Journal of Applied Sciences*, vol. 2, no. 9, pp. 939-942.

BABARINDE, S.A. (2009) Tree bees use - *Moringa oleifera*. *Bees for Development Journal*, vol. 92, p. 11.

BABARINDE, S.A. et al. (2011) Bioactivity of *Piper guineense* Schum. & Thonn seed and *Moringa oleifera* Lam. leaf powder against *Trogoderma granarium* Everts (Coleoptera: Dermestidae). *Archives of Phytopathology and Plant Protection*, vol. 44, no. 3, pp. 298-306.

CAKIR, A. (2004) Essential oil and fatty acid composition of the fruits of *Hippophae rhamnoides* L. (Sea Buckthorn) and *Myrtus communis* L. from Turkey. *Biochem. System. Ecol.*, vol. 32, pp. 809-816.

BAMISHAIYE, E.I. et al. (2011) Proximate and Phytochemical composition of *Moringa oleifera* leaves at three stages of maturation. *Advance Journal of Food Science and Technology*, vol. 3, no. 4, pp. 233-237.

DANE, F. and LIU, J. (2007) Diversity and origin of cultivated and Citron type watermelon (*Citrullus lanatus*). *Genet Resour Crop Evol*, vol. 54, pp. 1255-1265.

De LIMA, S.G. et al. (2008) Effects of immature cashew nut-shell liquid (*Anacardium occidentale*) against oxidative damage in *Saccharomyces cerevisiae* and inhibition of acetylcholinesterase activity. *Genetics and Molecular Research*, vol. 7, no. 3, pp. 806 – 818.

Dent, D. (1991) *Yield loss assessment*. In: Insect pest management. Wiltshire: C.A.B. International, Redwood Press.

DERKE, E.C. and DEHNE, H.W. (2004) Safeguarding Production losses in major crops and the role of crop protection. *Crop Protection*. vol. 23, pp. 275-285.

DHILLION, M.K., et al. (2005) The melon fruits fly, *Bactrocera cucurbitae*: a review of its biology and management. *Journal of Insects Science*. vol. 5, p. 40.

FASHEY, J.W. (2005) *Moringa oleifera*: A review of the medical evidence for its nutritional, therapeutic, and prophylactic properties. Part 1. *Trees Life J.*, no. 1, p. 5.

EILEEN, A.B. and SYDNEY, G.P.B. (2013) Natural products for managing landscaping and garden pests in Florida. EDIS.

GICHIMU, B.M. et al. (2009) Morphological characterization of some wild and cultivated watermelon (*Citrullus* sp.) accession in Kenya. *ARPN Journal of Agricultural and Biological Science*, vol. 4, pp. 1990-6145.

Hasyim, A. et al. (2008) Population fluctuation of the adult males of the fruits fly, *Bactrocera tau* Walker (Diptera: Tephritidae) in passion fruit orchards in relation to abiotic factors and sanitation. *Indones. J. Agric. Sci.*, vol. 9, no. 1, pp. 29-33.

INDRA, P.S. and KAMINI, V. (2003). *Control of flea beetle, Phyllotreta nemorum* L. (Coleoptera: Chrysomelidae) using locally available natural resources. Tribhuvan: Central Department of Zoology, Tribhuvan University, Kathmandu, Nepal.

ISMAN, M.B. (2006) Botanical insecticides, deterrents and repellents in modern agriculture and increasingly regulated world. *Annual Review of Entomology*. vol. 51, pp. 45-66

ISMAN, M.B. (2008) Perspective Botanical Insecticides: for richer for poorer. *Pest Management Science*, vol. 64, pp. 8-11.

KHAN M, et al. (2007) Effect of Neem leaf dust and a commercial formulation of a neem compound on the longevity, fecundity and ovarian development of the melon fly, *Bactrocera cucurbitae* (Coquillet) and the oriental fruit fly, *Bactrocera dorsalis* (Hendel) (Diptera: Tephritidae). *Pakistan Journal of Biological Sciences*, vol. 10, pp. 3656–3661.

MUKHOPADHYAY, et al. (2010) Larvicidal properties of cashew nut shell liquid (*Anacardium occidentale* L.) on immature stages of two mosquito species. *Journal of Vector Borne Disease*, vol. 47, pp. 257-260.

MITTAL, M., et al. (2007) Pharmacognostical and phytochemical investigation of antidiabetic activity of *Moringa oleifera* Lam leaf. *Ind. Pharm.*, vol. 6, pp. 70-72.

OBERLIES, et al. (1997) Structure activity relationships of diverse *Annonacera acetogenins* against multidrug resistant human mammary adenocarcinoma. *Journal medical chemistry*, vol. 40, pp. 2012-2106.

OGBUNUGAFOR, H.A. et al. (2011) Physico-chemical and antioxidant properties of *Moringa oleifera* seed oil. *Pakistan Journal of Nutrition*, vol. 1, no. 5, pp. 409–414.

OLAIFA, J.I. and ADEBAYO, T.A. (2003) Procedure for evaluation of toxicity and dosage and plant based pesticides. *Journal of Annals of Agriculture Sciences*, vol. 3, no. 2, pp. 31-37.

OLANIRAN, et al. (2013) Control of foliage pests of roselle (*Hibiscus sabdariffa* L.) using plant extracts of *Tephrosia vogelii* and *Azadirachta indica* in Ogbomoso Nigeria. *Transnational Journal of Science and Technology*, vol. 3, no. 6, pp. 51-62.

OLOTUAH, O.F. and OFUYA, T.I. (2010) Comparative protection of owpea, *Vigna unguiculata*, L.) Walpers against field insect pests using cashew nut shell liquid and Cypermethrin (Cymbush). *Pakistan Journal of Nutrition*, vol. 9, no. 2, pp. 158-161.

Oparaeke, A.M., Bunmi, (2006) Insecticidal potential of cashew (*Anacardium occidentale* L.) for control of the beetle, *Callosobruchus subinnotatus* (Pic) (*Bruchidae*) on bambara groundnut (*voandzeis subterranean* L.). *Verde Archives of Phytopathology and Plant Protection*, vol. 39, no. 4, pp. 247-251.

PERKINS-VEAZIE, J. (2001) *In search of High Lycophene watermelon*. USDA-ARS, South Central Agric. Research Centre Lane.

PRABHU, K. and MURUGAN, A. (2011) Larvicidal and repellent potential of *Moringa oleifera* against malarial vector, *Anopheles stephensi* Liston (Insecta: Diptera: Culicidae). *Asian Pac. J. Trop. Biomed.*, pp. 124-129.

NAVA-DIAZ, et al. (2000) Organismos association a chirmoyo (A. Chermola M:II) *Agrociencia*, vol. 34, pp. 217-226.

REHM, S. and ESPIG, G. (1991) *The cultivated plants of the tropics and subtropics*. Munchen: Verlag Josef Margraf, Weikersheim.

SCHIPPERS, R.R. (2000) African indigenous vegetable. In: *An overview of the cultivated species Chatthan*, pp. 56-60.

SELJASEN, R., and MEADOW, R. (2006) Effect of neem on oviposition and egg and larval development of mamestra brassicae L: Dose response, residential activity. Repellent effect and systemic activity in cabbage plants. *Crop Protection*, vol. 25, pp. 238 -345.

SINGH, R.N, and SARATCHANDRA, B. (2005) The development of botanical products with special reference to seri-ecosystem. *Caspain Journal Environmental Science*. vol. 3, no. 1, pp. 1-8.

SINGH, R.N, and SARATCHANDRA, B. (2002) An integrated Approach in the Pest Management in the sericulture. *International Journal Industries Entomology*. no. 5, pp. 141-151.

SOFIDIYA, M.O. et al. (2006) Free-radical scavenging activity of some Nigerian medicinal plant extracts. *Pakistan Journal of Biological Science*, vol. 9, no. 1, pp. 1438–1441.

WEEMS, H.V. and HEPPNER, J.B. (2001) *Melon fruit fly, Bactrocera cucurbitae* Coquillet (Insecta: Diptera: Tephritidae). Florida Department of Agriculture and consumer Services, Division of plant industry and T.R. Fasulo, university of Florida. university of florida publication EENY-199.

WHEELER, D. and ISMAN, M.B. (2001) Antifeedant and toxic activity of *Trichilia Americana* extracts against the larvae of *Spodoptera litura*. *Entomologia Experimentals Applicata*, vol. 98, p. 9.