

Development in Pesticides for Control and Prevention of African Giant Snails, *Achatina Fulica* in Jalgaon, Dapoli Dist. Ratnagiri (M.S.)

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Abstract: In the present study the occurrence of the Giant African snail, *Achatina fulica* reported from Jalgaon, Dapoli District Ratnagiri (M.S), India in various field during rainy season but their occurrence is throughout the year. Due to hibernation, these are not much active as compared to rainy season. According to native people of the area, severe plant and vegetable loss was not only due to infestation but also due to the stinking smell of the mucus layer in wetland dry conditions released by the Giant African snail, *Achatina fulica* different plants. The pest, also classified as a large-scale invader, has been known to be difficult to exterminate without harming nearby organisms as well as ecosystems. Hence, there should be a proper method of control measure of this pest. The following article describes possible methods of control measures researched since ages chemical as well as non-chemical. Even though a lot were proven to be unsuccessful, some methods do play an important role in the extermination of this species with respect to collective efforts, destruction scale, costings etc. Mechanical extermination is a lot more effective than the chemicals introduced which have a possibility of getting washed away due to rains or other possible circumstances. This article mainly focuses on discussing previously studied control methods and defining the criteria needed to develop a suitable pesticide.

Keywords: *Achatina fulica*, Pesticides, Eco-Friendly, Poison Baits, Cost-Friendly, etc.

REFERENCES

- [1] Alicata, J.E. (1966). The presence of *Angiostrongylus cantonensis* in islands of the Indian ocean and probable role of the giant African snail, *Achatina fulica*, in dispersal of the parasite to the Pacific Island. Canadian J. Zool., 44: 1041-1049.
- [2] Chandaragi M. Integrated management of giant African snail, *Achatina fulica* (Ferrusac) (Stylommatophora: Achatinidae) in agriculture and horticulture ecosystems. Ph.D. Thesis, Univ. Agril. Sci., Dharwad, 2014, 202
- [3] Kumari P. Studies on Biology and Integrated Management of giant African snail, *Achatina fulica* Bowdich (Stylommatophora: Achatinidae). Ph.D. Thesis, Rajendra Agril. Univ., Bihar, PUSA, 2011, 141.
- [4] Lake, P.S. and O'Dowd, D.J. (1991). Red crabs in rainforest, Christmas Island: biotic resistance to invasion by an exotic snail, *Oikos*, 62: 25-29
- [5] Mead, A.R. (1961). The Giant African Snail: A problem in economic malacology. University of Chicago Press, Chicago, 257pp.
- [6] Mead, A.R. (1979a). Economic malacology with particular reference to *Achatina fulica*. Academic Press, London, 150pp.
- [7] Mead, A.R. (1979b). Anatomical studies in the African Achatinidae preliminary report. *Malacologia*, 22: 489-493
- [8] Muniappan, R., Duhamel, G., Santiago, R.M. and Acay, D.R. (1986). Giant African snail control in Bugsuk Island, Philippines, by *Platydemus manokwari*. *Oleagineux*, 41:183-186
- [9] Nelson, S. (2012). Injuries caused by the giant African snail to papaya. Extension bulletin published by Department of Plant and Environmental Protection Sciences, Hawaii University, pp. 1-7.
- [10] Pallavi HS, Basavaraju BS, Umashankar N, Shivashankar T and Rajegowda (2018), Evaluation of eco-friendly and chemical pesticides, and attractant solutions against giant African snail, *Achatina fulica* Bowdich on mulberry,

- Department of Agricultural Entomology, College of Agriculture, V. C. Farm, Mandya, Karnataka, India, JPP 2018; 7(3): 666-671
- [11] Peter, D., Widmer, M. and Craven, T. (2012). Control of pest snail and slugs. Western Australian Agriculture Authority, Garden note, 12: 530.
- [12] Prasad, G.S., Singh, D.R., Senani, S. and Medhi, R.P. (2004). Eco-friendly way to keep away pestiferous giant African snail, *Achatina fulica* Bowdich from nursery beds. *Curr. Sci.*, 87: 1657– 1659.
- [13] Rao M. Orchid pest bio-control crop news. *Agric. Ind. Surv.* 1999; 12:44.
- [14] Raut, S.G. and Goshe, K.C. (1984). Pestiferous land snails of India. Zoological Survey of India, Calcutta, Bani Press, 151pp.
- [15] Raut, S.K. and Barker, G.M. (2002). *Achatina fulica* Bowdich and other Achatinidae as pests in tropical agriculture. In: G.M. Barker (ed.), *Molluscs as crop pests*. CABI Publishing, Hamilton, New Zealand, pp.55-114.
- [16] Ravikumara, Naik, M.I., Manjunatha, M. and Pradeep, S. (2007). Evaluation of attractant waste material and bait for management of gaint African snail, *Achatina fulica* Bowdich. *Karnataka J. Agric. Sci.*, 20(2): 288-290.
- [17] Selvi VA, Ram LC, Masto RE. Molluscicidal effect of biogenic silica and botanical pesticides for the control of *Achatina fulica* (Giant African land snail) and *Laevicaulis alte* (garden slug). *J Phytopathol. Pest Manag.* 2015; 2(1):12-21.
- [18] Skelley, P.E., Dixon, W.N. and Hodges, G. (2011). Giant African land snail and giant South American snails: field recognition. Florida Department of Agriculture and Consumer Services. Gainesville, Florida (U.S.A.).
- [19] Smith, J.W. and Fowler, G. (2003). Pathway risk assessment for Achatinidae with emphasis on the giant African land snail, *Achatina fulica* (Bowdich) and *Limicolaria aurora* (Jay) from the Caribbean and Brazil, with comments on related taxa *Achatina achatina* (Linne) and *Archachatina marginata* (Swainson) intercepted by PPQ. USDAAPHIS, Center for Plant Health Science and Technology (Internal Report), Raleigh (N.C.)
- [20] Tomiyama, K. (1992). Homing behaviour of the giant African snail, *Achatina fulica* (Ferussac) (Gastropoda; Pulmonata). *J. Ethol.*, 10: 139-14
- [21] Upatham, E.S., Kruatrachue, M. and Baidikul, V. (1988). Cultivation of giant African snail, *Achatina fulica*. *J. Sci. Soc. Thailand*, 14: 25-40
- [22] Vanitha K, Karuppuchamy P, Sivasubramanian P. Evaluation of botanicals against giant African snail, *Achatina fulica* Bowdich infesting vanilla. *J Appl. Zool. Res.* 2010; 21(2):115-120.
- [23] Vanitha K, Karuppuchamy P, Sivasubramanian P. Feeding preference of *Achatina fulica* attacking vanilla and its management through barrier substances. *Pest Manag. Hortic. Ecosyst.* 2011; 17(1):38-41.
- [24] Veeresh, G.K., Rajagopal, D. and Puttarudraiah, M. (1979). First record of African snail, *Achatina. fulica* Bowdich (Mollusca: Gastropoda) as a serious pest of ornamental crops in Bangalore. *Curr. Res.*, 8: 202-204.

WEBLIOGRAPHY

- [1] Anonymous (2012). Global invasive species Database. Version 2012. 2. *Achatina fulica* (mollusc). <http://www.issg.org/database/species/ ecology.asp? si=64&fr=1&sts=&lang=EN> (accessed 1 June 2012)