Journal of Agricultural Technology 2012 Vol. 8(2): 479-492
Available online http://www.ijat-aatsea.com
ISSN 1686-9141

A comparison of the effectiveness of the aqueous extracts of garlic, castor beans and marigold in the biocontrol of root-knot nematode in tomato

H. Tibugari[1*], D. Mombeshora[1], R. Mandumbu[2], C. Karavina[2], C. Parwada[2]

[1]Women's University in Africa, Department of Horticulture, P.O. Box MP 1222, Mount Pleasant, Harare, Zimbabwe, [2]Bindura University of Science Education, Department of Agricultural Sciences, Private Bag 1020, Bindura, Zimbabwe

H. Tibugari, D. Mombeshora, R. Mandumbu, C. Karavina, C. Parwada (2012) A comparison of the effectiveness of the aqueous extracts of garlic, castor beans and marigold in the biocontrol of root-knot nematode in tomato. Journal of Agricultural Technology 8(2): 479-492.

A glasshouse experiment to control RKN (*Meloidogyne javanica*) on tomato with aqueous extracts of marigold (*Tagetes erecta*) leaves and flowers, castor beans (*Ricinus communis*) and garlic (*Allium sativum*) was conducted from March to May 2011 in Harare. The plant material was dried and pulverized and diluted with water at a rate of 25g/100ml. Four-week old seedlings were planted in twenty micro plots arranged in a randomized complete block design with five treatments and four replicates. Approximately 5000 J2 nematodes were pipetted onto each plant. The botanicals were drenched around each plant. Nemacur® and non-amended plots served as control. Data collection was done fortnightly. Results showed that tomato is susceptible to RKN infestation and the application of botanicals significantly ($P < 0.001$) controls RKN by reducing galling and reproduction. While the botanicals were also effective in reducing galls, further tests will establish optimum concentrations.

Key words: *Meloidogyne javanica, Allium sativum*, *Tagetes erecta,* garlic

Introduction

Root knot nematodes (RKN) are responsible for 12.3% yield loss of the world's major crops (Sasser, 1998, in Sasena, Sikora and Srivastava), and global tomato production is affected by the genus *Meloidogyne*, the most economically important nematode in tropical and subtropical agriculture (Sasser, 1989) which reduces yield by 30 – 50% (Sasser and Freckman, 1987; Jonathan *et al*., 2001; Saravanpriya and Sivakumar, 2005; Cetintas and Yarba, 2010). RKN cause between 20-33% yield loss (Aalders *et al*., 2009; Khan,

* Corresponding author: H. Tibugari; e-mail: tibugarih@gmail.com; handsentibugari@gmail.com