World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:9, No:12, 2015

Resistance of Field Populations of Rhipicephalus bursa (Acari:Ixodidae) to Lambda-Cyhalothrin Acaricide in Mazandaran Province, North of Iran

Authors : Seyyed Payman Ziapour, Ahmadali Enayati, Sadegh Kheiri, Farzaneh Sahraei-Rostami, Reza Ali Mohammadpour, Mahmoud Fazeli-Dinan, Mohsen Aarabi, Fatemeh Asgarian, Seyed Hassan Nikookar, Mohammad Sarafrazi

Abstract : Rhipicephalus bursa (R. bursa) is a two-host ixodid tick with wide distribution in north of Iran especially in domestic animals of Mazandaran Province. The prolonged or incorrect use of chemical insecticides has led to build up of resistance in hard ticks in many areas of the world. Lack of basic information on resistance status of R. bursa was the reason behind this study to determine the susceptibility status of the species to lambda-cyhalothrin insecticide in Mazandaran Province. From May 2013 to March 2014, R. bursa ticks were collected on sheep, goat and cattle in different districts of Mazandaran Province. The engorged female ticks were reared in a controlled insectary for producing 12-18 days old larvae for larval packet test (LPT) bioassay against discriminant doses of lambda-cyhalothrin 5% EC (MAC SILAT®). 80% of ten pooled tick populations were susceptible to lambda-cyhalothrin as resistance ratios (RR50s) varied from 1 to 2.94 when compared with the most susceptible population NH-16. Only GK-12 and BF-6 populations (from plain areas of Galugah and Fereydunkenar Counties, respectively) were classified as resistant level I at LC50 level. Population NK-2 (from woodland areas of Kojour district in Nowshahr County) showed the highest resistance ratio of RR99 = 4.32 and 30% of tick populations were resistant at LC99 level. Our research showed initiation of lambda-cyhalothrin resistance in Rhipicephalus bursa populations in Mazandaran Province, Northern Iran. This is considered a warning to policy makers for disease control in the study area. This research is a part of the PhD thesis of SP. Ziapour by grant No. 92-89 in Student Research Committee, Mazandaran University of Medical Sciences, Iran.

Keywords : Rhipicephalus bursa, hard tick, lambda-cyhalothrin resistance, Iran
Conference Title : ICE 2015 : International Conference on Entomology
Conference Location : Penang, Malaysia
Conference Dates : December 03-04, 2015