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研究报告

非嗜食植物乙醇提取物对小菜蛾种群控制作用评价

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摘要

通过建立实验种群生命表和自然种群生命表，应用种群趋势指数(index of population trend，I)和干扰作用控制指数(interference index of population control，IIPC)，评价花椒(Zanthoxylum bungeanum)、细叶桉(Eucalyptus tereticornis)、烟草(Nicotiana tabacum)、构树(Broussonetia papyrifera)、羊蹄甲(Bauhinia variegata)、假莲翘(Duranta repens)、飞扬草(Euphorbia hirta)、茶枯(Camellia oleifera)8种非嗜食植物乙醇提取物对小菜蛾实验种群的控制作用，以及细叶桉、烟草、茶枯3种非嗜食植物乙醇提取物及其混合液对小菜蛾自然种群的控制作用.室内试验结果表明，在各种植物乙醇提取物作用下，I值从小到大的顺序为4.4842(细叶桉)、 5.3702(花椒)、5.5199(飞扬草)、6.1609(假莲翘)、6.8937(羊蹄甲)8.0945(烟草)、9.8052(茶枯)、11.1382(构树)，对照的I值为69.8964; IIPC值从小到大的顺序为0.0642(细叶桉)、0.0768(花椒)、0.0790 (飞扬草)、0.0881(假莲翘)、0.0986(羊蹄甲)、0.1158(烟草)、0.1403 (茶枯)、0.1594 (构树)，说明供试植物提取物对小菜蛾实验种群增长都有一定的抑制和干扰作用.小菜蛾自然种群生命表研究结果表明，在各种植物乙醇提取物作用下，I值从小到大的顺序为5.1997(细叶桉)、7.4160(烟草)、7.3644(茶枯)和3.1399(混合液)，对照的I值为21.6232;IIPC值从小到大的顺序为混合液(0.1608)、细叶桉(0.2405)、茶枯(0.3549)、烟草(0.3695)，说明供试植物提取物都能明显降低种群趋势指数，在一定程度上抑制和干扰小菜蛾自然种群增长，在生产中有一定的应用前景.

关键词 植物乙醇提取物,小菜蛾,生命表,干扰作用控制指数,种群趋势指数

分类号

Evaluation of non host plant ethanol extracts against Plutella xylostella population

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Abstract

Through establishing experimental and natural population life tables,and by using the index of population trend (I) and interference index of population control (IIPC),this paper evaluated 8 kinds of non host plant ethanol extracts against experimental population of Plutella xylostella,and 3 kinds of these extracts and their mixture against Plutella xylostella natural population.The experimental population life table of DBM showed that the index of population trend (I) was 69.8964 in control,and decreased dramatically to 5.3702,4.4842,8.0945,11.1382,6.8937,6.1609,5.5199 and 9.8052,respectively in treatments of Zanthoxylum bungeanum,Eucalyptus tereticornis,Nicotiana tabacum,Broussonetia papyrifera,Bauhinia variegata, Duranta repens,Euphorbia hirta and Camellia oleifera ethanol extracts,while the corresponding IIPC was 0.0768,0.0642,0.1158,0.1594,0.0986,0.0881, 0.0790 and 0.1403,respectively.The natural population life tables of DBM showed that the index of population trend (I) was 21.6232 in control,and decreased dramatically to

5.1997,7.4160,7.3644 and 3.1399,respectively in treatments of the ethanol extracts of E.tereticornis,N.tabacum,C.oleifera and their mixture,while the corresponding IIPC was 0.2405,0.3695,0.3549 and 0.1608,respectively.All of these indicated that the test plant extracts could interfere the development of P.xylostella population significantly,and had the potential as an effective measure for controlling insect pest.

Key words Plant ethanol extracts Plutella xylostella Life table Interference index of population control Index of population trend

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