

DIVERSITY OF FRUIT FLIES (DIPTERA: TEPHRITIDAE) IN SELECTED LOCATIONS IN THE DRY ZONE OF SRI LANKA

D. K. A. Heshani and U.G.A.I. Sirisena

Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyanikulama, Anuradhapura

The fruit flies (Diptera; Tephritidae) are one of the most destructive groups of agricultural pests and attack most commercial fruit and vegetable crops. Some species are considered to be invasive and several have caused major economic damage. The presence of fruit flies on agricultural produce in international trade is a quarantine threat and may cause the rejection of shipments. While major pest species have been extensively studied, information on the species diversity and faunal composition of fruit flies in Sri Lanka is scanty, particularly in the Dry Zone. The present study therefore assessed fruit fly diversity in five selected locations representing three districts in the Dry Zone: Anuradhapura, Polonnaruwa and Puttalam. Samples were collected using male lure-traps separately baited with Methyl eugenol and Cue-lure. Fifteen traps were maintained for two days at 300 m transects in agricultural fields located at five sites in each of Saliyapura, Mihintale, Kumudupura, Medirigiriya and Kalpitiya. The fruit fly abundance at the different locations was compared using zero-inflated Poisson regression and the species diversity of each region was assessed by calculating the Shannon diversity index for each location. A total of 15,380 individual flies were collected belonging to 9 species: *Dacus discophorus*, *Bactrocera correcta*, *B. cucurbitae*, *B. dorsalis*, *B. kandiensis*, *B. nigrofemoralis*, *B. zonata*, *Bactrocera* sp1 and *Bactrocera* sp 2. The abundance of fruit flies was significantly high ($p < 0.05$) in Kumudupura and the lowest number was recorded from Kalpitiya. The highest fruit fly species diversity was recorded from Saliyapura ($H=1.15$) followed in decreasing order of diversity by Mihintale, Medirigiriya, Kalpitiya and Kumudupura ($H=0.36$). *Bactrocera correcta* (73%) and *B. dorsalis* (21%) were the numerically dominant species at all the sites surveyed, although the latter had been thought to be the most dominant species in Sri Lanka. The majority (97.1%) of the collected species was fruit pests and rests were cucurbit pests (1.9%) and non-pest species (0.9%). Surveying fruit flies in other regions of the island is needed to revise considering knowledge of the diversity and species distributions of the family Tephritidae in Sri Lanka.

Keywords: Cucurbits, Fruits, Pests, Species diversity