

## CONSERVING NATURAL ENEMY BIODIVERSITY IN THE CABBAGE FIELDS BY USING INTERCROPPING SYSTEM

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### Abstract

Intercropping system is an important cultural practice in IPM that is established on the concept of reducing insect pest's population by enhancing the ecosystem biodiversity. A study was conducted to evaluate the effect of the intercropping system of Cabbage in enhancing the exciting of natural enemies and pollinators. The population density and seasonal presence of predators and parasitoids in the intercropping systems of cabbage were estimated using sticky traps at Al-Zubair site, province of Basrah during the growing season of 2020/2021. The presence of a number of predators *Orius* spp (Anthocoridae: Hemiptera) and *Hippodamia* sp., and *Thtthaspis sedecimpunctata* Linnaeus (Coleoptera: Coccinellidae), green lacewing, *Chrysopa pallens* (Neuroptera: Chrysopidae), Rove beetles, *Amazoncharis* sp (Staphylinidae: Coleoptera) and spider (Araneae). A number of parasitoid such as *Orthopelma* sp., *Campoplex* sp (Hymenoptera: Ichneumonidae), *Eurytoma* sp (Eurytomidae: Hymenoptera) and *Plectiscidea fuscifemur* (Hymenoptera: Orthocentrinae), *Aphidius* sp (Hymenoptera; Aphididae) and *Pnigalio* sp. (Eulophidae: Hymenoptera) and *Bitomus* sp. (Hymenoptera: Braconidae). The study indicated to presence of pollinators (flower fly) *Eupeodes corolla* and *Sphaerophoria scripta* (Diptera: Syrphidae), green bottle fly *Lucilia Caesar* and *L. Sericata* (Deptera: Calliphoridae). The population of the predators, parasitoids and pollinators increased in cabbage intercropped with Alfalfa, broad bean and onion crops compared to the monoculture system. The values of the diversity index were calculated based on the Shannon-Wiener diversity index for the biodiversity of natural enemies and pollinators; the highest values were 2.5 and 2.4 in the intercropping systems (3 cabbage: 1 onion) and (3 cabbage: 1 Alfalfa) respectively, while the lowest value of the index was 1.8 in the treatment (2 cabbage: 1 broad bean) compared to 2.3 in monoculture. The study concluded that the intercropping systems provided a great potential to maintain the population of natural enemies. Thus, the intercropping system can be relied on to be one of the integrated pest management methods.

Keywords: biodiversity, cabbage fields, intercropping system

### Introduction

Biodiversity through intensive cultivation of different economic crops can lead to a reduction in insect populations by enhancing the presence of natural enemies (Stiling et al., 2003). The biodiversity of natural enemies usually reflects the population of predators and parasites infesting