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Characterization of Mosquito Larval Habitats in Urban Environments of Greater Cairo

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Dedication

To the pillars of my life:

My family and my best friends

You are the world to me and without you, my life would fall apart, I love you ...

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ABSTRACT

The ecology of mosquito larvae was investigated over a 17 month period in two localities in Cairo representing different levels of urban planning: El-Muqattam (M, planned safe and planned unsafe) and Abu-Seir (A, unplanned unsafe). Sampling frames were obtained by using a geographic information system (GIS) to subdivide satellite images of the study areas. Thirty seven water bodies in the selected grid cells (20 % of cells) were identified and characterized based on physical, chemical and biological parameters. Six mosquito species (*Culex pipiens*, *Cx. perexiguus*, *Cx. pusillus*, *Ochlerotatus caspius*, *Anopheles multicolor* and *Culiseta longiareolata*) were identified from the two localities. From these, the filarial vector, *Cx. pipiens*, was the most common species; suggesting a threat of filaria transmission in these two localities specially (A) as being adjacent to endemic areas. Of the different types of breeding habitats, cesspits (M) and drainage canals (A) were the most common; while springs (M) and drainage canals were the most productive type. Both *Cx. pipiens* and *Cx. perexiguus* breed all year round with peaks of abundance coincided with high temperatures. The association of the mosquito species with the physical, chemical and biological characteristics of their breeding habitats was examined. The occurrence of mosquito species did not relate to the occurrence of 13 algal taxa and 2 aquatic plants for most comparisons. In contrast, there was a relation between *Cx. pipiens* and the occurrence of 3 algae ($P<0.05$, chi-squared analysis). The densities of both *Cx. pipiens* and *Cx. perexiguus* in the two localities were directly related to temperature, pH, DO and nitrite but indirectly related to the salinity and turbidity of the breeding water. These findings contribute to our understanding of the interactions between mosquito larvae and the biotic and abiotic components of the urban environment. This is important for planning a relevant and effective control program in Egypt.

Key words: Mosquito larvae, breeding sites characterization, monthly abundance , Cairo, , urban areas, El-Muqattam, Abu-Seir.

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