Diversity and abundance of vector mosquitoes in Wanawasala area of Kelaniya in Sri Lanka and some factors affecting their abundance and distribution

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Present study was conducted to determine the diversity and abundance of vector mosquito species found in Wanawasala area, Kelaniya of Sri Lanka and to investigate some physicochemical, environmental and biological factors affecting the abundance of mosquito larvae in study area during the period from February to July, 2011.

The survey was carried out to cover a maximum of 30 outdoor sampling locations. Physical, chemical and biological parameters were recorded for each sampling sites and samples of mosquito larvae were collected with the standard mosquito scooper using dipping method, once a month. Meanwhile laboratory experiments were carried out to determine the effect of different levels of pH on larval survival of *Culex quinquefasciatus* mosquitoes.

Morphological identification of 2683 mosquito larvae collected during the study period was dominated by *Culex quinquefasciatus*(55.2%), *Cu.gelidus*(13.7%), *Armigeres* sp.(11.5%). Results revealed that rice field mud flats were the highest diverse habitat type found in Wanawasala area which included four *Culex* species and one *Armigeres* species (Shannon wiener diversity index/H ' = 0.6648). Blocked drains were associated with significantly higher *Culex quinquefasciatus* larvae and over the time period their abundance was significantly increased compared to that of other mosquito species found in study area ($P < 0.05$). *Cu. gelidus* and *Cu .whitmorei* were restricted to habitats with live vegetation cover such as rice field habitats and marshy lands with higher water conductivity and turbidity. *Culex quinquefasciatus* larval habitats had low dissolved oxygen content and high biological oxygen demand with respect to the habitats of other mosquitoes. Their habitats were also positively associated with tubificid and chiranomid larvae and negatively associated with vegetation cover. The larval abundance in Wanawasala area was positively associated with monthly average rainfall. According to laboratory experiment *Culex quinquefasciatus* larval survival was rapidly declined at pH level 9.4 in highly alkaline water and they cannot survive in pH of more than 11.0.

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