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A composition of the relative efficiencies between artificial substrate samplers and conventional sampler in sampling macroinvertebrates for biomonitoring of water quality

Techniques adopted for macroinvertebrate sampling in quality assessment of running water is vitally important. The validity and accuracy of any biomonitoring program depends crucially upon the sampling methods. In the present study, for sites in upper and middle catchment area of Nilwala River Basin in Matara district were sampled using two types of artificial substrate samplers (ASS) and a conventional sampler (CS) from July 199 to May 2000 to compare their relative efficiencies. Wire mesh cages (WMC) filled with stones and wooden boxes (WB) were used as ASS, while surbur sampler was used as a CS. ASS were set in different microhabitats i.e. pools, riffles and cascades comprising natural substrate types such as leaf litter, sand and bedrock respectively and surber sampler was also operated on the same comparable natural substrate types.

Results revealed that abundance and the number of taxa of macroinverebrates collected from WMC, WB and CS were significantly different ($p<0.05$) irrespective to sites. When compared, the number of taxa sampled was higher in WMC (average 14 taxa) than WB sampler (average 06 taxa) and conventional sampler (average 08 taxa), while WB sampler showed the highest abundance of maroinvertebrates. Chironomids, annelids and mollucs were the dominant taxa found in WB sampler and cased caddish fly, Simulium and plecopteran larvae preferred to colonize in WMC sampler. Macroinverterbrates collected from different natural substrate types showed significant difference in terms of the number of taxa and their abundance. The number of taxa and their abundance were highest in leaf litter and lowest in sand. Dipteran and coleopteran larvae were more abundant in leaf litter. As the number of taxa (which can be used as

indicators of water quality) sampled by the ASS was higher than that by CS, the ASS is more effective in sampling macroinvertebrates in biomonitoring studies.