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Influence of Physicochemical Water Quality Parameters on Abundance of Aquatic Insects in Rivers of Perak, Malaysia

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Abstract : The effect of water quality parameters on the abundance of aquatic insects has been studied in Batu Berangkai, Dipang, Kuala Woh and Lata Kinjang Rivers, Perak, northern peninsular Malaysia. The focuses are to compare the abundance of aquatic insects in each sampling areas and to investigate the physical and chemical factors (water temperature, depth of water, canopy, water velocity, pH value, and dissolved oxygen) on the abundance of aquatic insects. The samples and data were collected by using aquatic net and multi-probe parameter. Physical parameters; water velocity, water temperature, depth, canopy cover, and two chemical parameters; pH value and dissolved oxygen have been measured in situ and recorded. A total of 631 individuals classified into 6 orders and 18 families of aquatic insects were identified from four sampling sites. The largest percentage of samples collected is from order Plecoptera 35.8%, followed by Ephemeroptera 32.6%, Trichoptera 17.0%, Hemiptera 8.1%, Coleoptera 4.8%, and the least is Odonata 1.7%. The aquatic insects collected from Dipang River have the highest abundance of 273 individuals from 6 orders and 13 families and the least insects trapped at Lata Kinjang which only have 64 individuals from 5 orders and 6 families. There is significant association between different sampling areas and abundance of aquatic insects ($p<0.05$). High abundance of aquatic insects was found in higher water temperature, low water velocity, deeper water, low pH, high amount of dissolved oxygen, and the area that is not covered by canopy.

Keywords : aquatic insect, physicochemical parameter, river, water quality
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