D-54 **Spatial and seasonal variations of some abiotic characteristics and epilithic algal biomass of the Hulu Ganga from headwater to downstream**

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Some aspects of the abiotic characteristics and epilithic algal biomass of the Hulu Ganga was studied monthly at 10 sites from July 1996 to July 1997, to determine whether there is a site-specific or time-bound variation in the said stream ecological characteristics.

The stream water was slightly acidic during the study period except in a few cases, while the other major hydrochemical parameters fell within the value for undisturbed tropical streams. However the concentrations of micronutrient were relatively high. One way analysis of variance shows that there was no statistically significant site specific variability in SO_4^{2-}, NH_3-N, total and dissolved phosphorous while K^+ ($F=13.44$, $p>0.0001$), Na^+ ($F=19.58$, $p>0.0001$), Ca^{2+} ($F=15.62$, $p>0.0001$), Mg^{2+} ($F=15.14$, $p>0.0001$), chloride ($F=8.44$, $p>0.0001$), NO_3^- ($F=2.01$, $p>0.0472$) and NO_2^- ($F=2.89$, $p>0.0048$) with some exceptions, were significantly different among the sites. With some exceptions, the concentrations of K^+ ($F=7.9$, $p>0.0001$), Na^+ ($F=8.64$, $p>0.0001$), Ca^{2+} ($F=11.35$, $p>0.0001$), Mg^{2+} ($F=3.91$, $p>0.0002$), chloride ($F=8.67$, $p>0.0001$), NO_3^- ($F=4.78$, $p>0.0001$), NO_2^- ($F=15.41$, $p>0.0001$) and dissolved phosphorous ($F=6.95$, $p>0.0001$) were significantly different among months and SO_4^{2-} and total phosphorous concentrations did not show seasonal variations. Chlorophyll-a content of the epilithic algae which was dominated by diatoms was also significantly different among sites ($F=1.69$, $p>0.1104$) as well as among months ($F=5.64$, $p>0.001$) with a few exceptions.

The results showed that there were no gradual changes of hydrochemistry and epilithic algal biomass of the Hulu ganga from headwater to downstream. However, significant site specific and time-bound variation in hydrochemical parameters and epilithic algal biomass were apparent.