

# **Status of Surface Water at Three Selected Areas of Coastal Guyana (South America) and the Treatment of the Respective Water with a Suitable Adsorbent**

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## **Abstract**

The surface water at Pattensen, Turkeyen, Guyana (South America) was tested for the presence of heavy metal cations and anions, electrical conductivity, EC, turbidity and salinity in the presence and absence of an adsorbent, ground coconut midrib in its uncarbonized state. Metal Cations tested for were:  $\text{Fe}^{3+}$  and  $\text{Al}^{3+}$ . Anions tested for were  $\text{PO}_4^{3-}$  and  $\text{NO}_3^-$ . Other parameters evaluated was free chlorine. The adsorbent, prior to be used was ground, extracted with hexane and subjected to drying. The coconut midrib in its uncarbonised state, was effective in extracting Fe, Free chlorine,  $\text{Al}^{3+}$ ,  $\text{PO}_4^{3-}$  and  $\text{NO}_3^-$ . Salinity also decreased. For example, the status of the surface water prior to the use of the adsorbent was:  $\text{Al}^{3+}$  : 0.689mg/L;  $\text{PO}_4^{3-}$ : 0.90mg/L;  $\text{NO}_3^-$ : 10.18mg/L; Salinity; 0.01mg/L. For the water treated with the adsorbent, the respective concentrations were: Fe: 0.01mg/L; Free Chlorine: 0.00mg/L; Al: 0.20mg/L;  $\text{PO}_4^{3-}$  : 0.40mg/L and  $\text{NO}_3^-$ : 4.56mg/L. Salinity was registered at 0.0 mg/L. Thus, the adsorbent in its uncarbonized state, was effective in removing cationic and anionic pollutants from the selected surface water.

## **Keywords**

Surface water, cations, anions, adsorbent, ground coconut midrib.