Abstract

Surface water concentrations of inorganic nutrients and suspended particulate matter (SPM) components from Mtwapa and Shirazi creeks in Kenya were measured and compared. This was aimed at assessing the contribution of phytoplankton carbon, particulate organic carbon (POC) and detritus on the total SPM pool, and the influence of sewage discharge on these components of SPM. The results obtained were compared with those from Ramisi, an estuarine system. Using PCA and cluster analysis, three clear clusters of stations were obtained. The two creek systems (Mtwapa and Shirazi) were separated into two distinct clusters. The cluster comprising five stations in Mtwapa and four in Shirazi was characterised by high levels of POC: phytoplankton carbon ratio and to a lesser extent by pennate diatom stocks. All stations from Ramisi estuary were clustered together and were characterised by high concentrations of phytoplankton carbon, centric diatoms, dry weight, POC and detritus. A third cluster, comprised of two stations in Mtwapa, was characterised by high numbers of dinoflagellates. From the results obtained, detritus forms the main source of POC in the three sites; it accounts for a mean of 61% ±20 in Ramisi, 97% ±0.7 in Shirazi and 65% ±29 in Mtwapa. These high detritus levels are expected because of the allochthonous supply of particulate material by the river in Ramisi and the contribution from mangroves, which fringe the banks of the estuary and the creeks.