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Functional Feeding Groups and Trophic Levels of Benthic Macroinvertebrates Assemblages in Albertine Rift Rivers and Streams in South Western Uganda

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Abstract : Behavioral aspects of species nutrition such as feeding methods and food type are archetypal biological traits signifying how species have adapted to their environment. This concept of functional feeding groups (FFG) analysis is currently used to ascertain the trophic levels of the aquatic food web in a specific microhabitat. However, in Eastern Africa, information about the FFG classification of benthic macroinvertebrates in highland rivers and streams is almost absent, and existing studies have fragmented datasets. For this reason, we carried out a robust study to determine the feed type, trophic level and FFGs, of 56 macroinvertebrate taxa (identified to family level) from Albertine rift valley streams. Our findings showed that all five major functional feeding groups were represented; Gatherer Collectors (GC); Predators (PR); shredders (SH); Scrapers (SC); and Filterer collectors. The most dominant functional feeding group was the Gatherer Collectors (GC) that accounted for 53.5% of the total population. The most abundant (GC) families were Baetidae (7813 individuals), Chironomidae NTP (5628) and Caenidae (1848). Majority of the macroinvertebrate population feed on Fine particulate organic matter (FPOM) from the stream bottom. In terms of taxa richness the Predators (PR) had the highest value of 24 taxa and the Filterer Collectors group had the least number of taxa (3). The families that had the highest number of predators (PR) were Corixidae (1024 individuals), Coenagrionidae (445) and Libellulidae (283). However, Predators accounted for only 7.4% of the population. The findings highlighted the functional feeding groups and habitat type of macroinvertebrate communities along an altitudinal gradient.

Keywords : trophic levels, functional feeding groups, macroinvertebrates, Albertine rift
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