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Leaf litter breakdown rate in some streams of the equatorial forest in Cameroon

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Abstract

The decomposition process was carried out using the litter bag method with dead leaves of Funtumia africana exposed in seven streams. The installation and removal of the bags were accompanied by the measurement of certain biological and environmental parameters controlling the process of decomposition of the litter. Thus, the decomposition rate varied from 0.035 g.d^{-1} to 0.056 g.d^{-1} with an average of 0.042 ± 0.006 g.d^{-1} in the coarse mesh litter bags and from 0.018 g.d^{-1} to 0.059 g.d^{-1} with an average of 0.037 ± 0.01 g.d^{-1} in fine-mesh litter bags. No significant difference was observed between stations (P-value = 0.162 for Kc; P-value = 0.045 for Kf) and seasons (Pvalue 0.043 for Kc; P-value = 0.053 for Kf). Decomposition was mainly due to microbial activities and the contribution of shredders was less. But the rates obtained indicate rapid decomposition (> 0.01 g.d^{-1}). The Kc to Kf ratio and the litter fragmentation rate F confirmed this weak contribution of the shredding benthic macroinvertebrates in the process. Among the environmental factors considered, only the distance to the source (P-value = 0.0134) and the pH (P-value = 0.063) seem to positively influence the rate of decomposition of the litter of Funtumia africana but not significant.

Keywords: Decomposition, natural forest

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