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Litter decomposition patterns and dynamics across biomes: Initial results from the global TeaComposition initiative

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Litter decomposition represents one of the largest fluxes in the global terrestrial carbon cycle and a number of large-scale decomposition experiments have been conducted focusing on this fundamental soil process. However, previous studies were most often based on site-specific litters and methodologies. The contrasting litter and soil types used and the general lack of common protocols still poses a major challenge as it adds major uncertainty to meta-analyses across different experiments and sites. In the TeaComposition initiative, we aim to investigate the potential litter decomposition by using standardized substrates (tea) for comparison of temporal litter decomposition rates across different ecosystems worldwide. To this end, Lipton tea bags (Rooibos and Green Tea) has been buried in the H-A or Ah horizon and incubated over the period of 36 months within 400 sites covering diverse ecosystems in 9 zonobiomes.

We measured initial litter chemistry and litter mass loss 3 months after the start of decomposition and linked the decomposition rates to site and climatic conditions as well as to the existing decompositions rates of the local litter. We will present and discuss the outcomes of this study.

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