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THE EXPERIENCE OF DESICCATION-SENSITIVE SEEDS IN FOREST FLOOR AFTER DISPERSAL: EFFECTS ON GERMINATION AND LONGEVITY

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Species with desiccation sensitive seeds inhabit wet environments such as tropical forests. After dispersal, their seeds share anatomical and physiological traits such as active metabolism, large size and high moisture content and a limited tolerance to dehydration. Generally these seeds germinate fast inside the moist environment of the forest. Nevertheless, environmental conditions in the forest floor are not uniform over time even in rainy season. If the soil and litter moisture fluctuates, what effect does this have on the physiology of freshly-dispersed seeds? We evaluate the effect of forest soil and litter on germination and longevity of these seeds on four tree species from tropical forests of Mexico. First, we evaluating desiccation sensitiveness of seeds through storage. Secondly, we placed freshly dispersed seeds: 1) above the leaf litter, 2) below leaf litter, 3) on soil surface and 4) buried into soil. We evaluated moisture changes in seed, litter and soil. Staying duration on soil was different for each species considering their respective germination behavior, but avoiding radicle protrusion. After that, seeds were sown and germinated in germination chamber (25 °C, 12/12 h photoperiod). Also, we stored seeds in a controlled-environment chamber (15 °C, 45% RH). After treatments we obtained seed viability (final germination percentage) and vigor (lag time and maximum germination rate). All species had desiccation sensitive seeds. After remaining in the soil sites, the seeds increased in vigor compared to untreated seeds. After storage, seeds that showed high vigor were buried seeds of two species, and seeds of all soil sites except burial in one species. Our results suggest that these desiccation sensitive seeds may have some physiological changes during their stay in the forest floor after dispersal. This might be an advantage for seedling establishment. We highlight the effect of seed burial on improvement of seed longevity.

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