PLANT CHEMICAL DEFENSE ALLOCATION CONSTRAINS EVOLUTION OF LOCAL RANGE

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ABSTRACT

Many species of plants are distributed spatially in patches, the boundaries of which may occur and change because of a complicated interplay between myriad environmental stressors and limitations of, or constraints on, plant coping mechanisms. By examining quantitative genetic variation and co-variation among marker-inferred inbred lines and maternal families of an upland wild mustard species within and just a few meters across a natural patch boundary, we show that the evolution of tolerance to the stressful environment outside a patch is constrained by allocation to glucosinolate compounds that are defensive against generalist insect herbivores.