

Baldwin, Ian T. University at Buffalo, SUNY Buffalo, Buffalo, NY 14260, USA. Nicotine and nitrogen in *Nicotiana*; the integration of "defensive" and "civilian" responses to damage.

Once the initial barriers to herbivore attack are breached and a plant is damaged, a plant may exhibit a plethora of responses that include dramatic increases in the concentrations of secondary metabolites and a suite of physiological responses that include increases in photosynthetic rates which presumably contribute to a plant's resistance and resilience to damage, respectively. I examine the integration of these two components of a plant's response to damage in a wild tobacco species, *Nicotiana sylvestris*, where leaf damage results in large (4-fold) increases in metabolically-labile leaf alkaloids, an increase which is in turn due to the transport of large quantities of alkaloid (and thus nitrogen) from root to leaf in the xylem fluid. ^{15}N -label from $^{15}\text{NO}_3$ fed to roots is followed into alkaloid biosynthesis, and from alkaloid into the leaf protein pool and specific leaf RuBPCase and pigment proteins.