Antibiosis/antixenosis in tulip tree and quaking aspen leaves against the polyphagous southern armyworm, *Spodoptera eridania*

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Abstract

Previous studies have shown leaves of tulip tree, *Liriodendron tulipifera* L. (of the Magnoliaceae) and of *Populus tremuloides* Michx. (of the Salicaceae) to be antixenotic/antibiotic to many Lepidoptera, including one of the most polyphagous of all phytophagous insects, the southern armyworm, *Spodoptera eridania* Cramer (Noctuidae). We investigated the physiological responses to this phytochemical activity on neonate and late instar armyworm larvae in controlled environments with particular emphasis upon the leaf extracts containing condensed tannins and hydrolysable tannins. These tannin-containing extracts of tulip tree leaves and quaking aspen leaves were generally toxic to neonate larvae. For later instars, growth suppression was not due to digestibility-reduction, but instead to suppressed consumption rates and greatly increased metabolic (respiratory) costs as reflected in reduced biomass conversion efficiencies.