

## NATUREOPATHIC DEFENSE COMPOUNDS MODULATING TERMITE BEHAVIOR

DODSON, B. L., R. VON HANWEHR, V. CHANDOKE, C. E. SWENBERG,  
AND J. D. ISBISTER

Allergen Rescue, Georg Mason Univ., 4042 Championship, Annandale, VA 22003 USA

Diverse plant-derived defense compounds present an intriguing model for exploring termite responses in controlled environments. Our group is identifying terpene and sesquiterpene constituents of folded, volatile oils distilled from a variety of citrus products. These oils include the pyryl alcohols, such as limonene, more complex products such as gamma-bisabolene, nootkatone, valencene, camphore and cedrane analogues, as well as a spectrum of associated sesquiterpene dimers. These and related constituents are under investigation for their direct odorant-receptor mediated defense potential against eastern subterranean termites, *Reticulitermes flavipes* (Kollar). These test compounds also may function as pheromonal mimics that disrupt homeostasis between termite host and either fungal or protozoa symbiots essential for host nitrogen utilization. Active termite colonies are maintained in experimental environmental layouts in order to assay caste behavior, colony proliferation, and biomass stability upon exposure to test chemicals. Design and implementation of laboratory models for studying potential pheromonal structure-function relationships of these plant-derived defense compounds will be presented and results discussed.