

## **A Field trial in Thailand to Evaluate the Efficacy of A New Non – Repellent Termiticide (Clothianidin: Neo-Nicotinoid) In Preventing Structural Damages Caused by Subterranean Termites**

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### **ABSTRACT**

A study on the efficacy of 2 new non-repellent soil termiticides was conducted in order to evaluate their effectiveness in preventing invasion by subterranean termites foraging underneath buildings. The method used in this study, a Modified Ground Board Test (MGB) for houses with slab on ground – is meant to simulate a construction practice widely used in the country. The study was initiated in 2010 first in the central plain of Rachaburi province, and later was also done in the northeast of Khon-Kaen province. Two formulations of Clothianidin, the newly promoted termiticide product used in the study, were Clothianidin 7.5% w/w CS and Clothianidin 20% w/w SC, and each formulation was applied in three concentrations (0.05% w/w, 0.1% w/w and 0.15% w/w). Selected chemicals in pyrethroid group (Bifenthrin 10% w/w ES and Bifenthrin 20% w/w SC), phenyl pyrazole group (Fipronil 2.5% w/w EC and Fipronil 5% w/w SC), chloronicotinyl group (Imidacloprid 10% w/w SL and imidacoprid 25% w/w SL) and pyrrole group (Chlorfenapyr 24% w/w SC) were also tested alongside as benchmarks for comparison. Eight species of termites commonly found in the field trial sites includes *Coptotermes gestroi*, *Macotermes annandalei*, *Odonotermes* sp., *Microtermes obesi*, *Hypotermes makhamensis*, *Globitermes sulphureus*, *Microcerotermes crassus* and *Nasutitermes* sp. thus far, the results obtained after 3 years and 10 months of continuous observations show that both Clothianidin 7.5% w/w CS and Clothianidin 20% w/w SC were effective in controlling the subterranean termites. At the lowest concentration tested (0.05% w/w), both Clothianidin 7.5% w/w CS and Clothianidin 20% w/w SC achieved acceptable protection range or level. When dosage was increased to 0.10 or 0.15% w/w. the wood damage was reduced to 5% for both clothianidin formulations. The percentage of wood damage for all the tested concentrations of the two clothianidin formulations were significantly lower than that of the control treatment ( $P < 0.01$ ).

Key words: Clothianidin, non-repellent termiticide, , subterranean termite, modified ground board test