



Malays. Appl. Biol. (2018) 47(3): 71–77

DEGRADATION RATE AND HALF-LIFE OF TERMITICIDES

IN MALAYSIAN SANDY LOAM SOIL

MOHD FAWWAZ MOHD RASHID and ABDUL HAFIZ AB MAJID*

Household & Structural Urban Entomology Laboratory, Vector Control Research Unit,

School of Biological Sciences, Universiti Sains Malaysia, 11800 Gelugor, Penang, Malaysia

**E-mail: abdhafiz@usm.my*

Accepted 7 May 2018, Published online 30 June 2018

ABSTRACT

Soil termiticide treatment by creating a continuous barrier surrounding the structure is one of the means to control termite population and protect structures from termite invasion. However, termiticides may degrade due to several environmental factors such as moisture, temperature and soil pH. Thus, estimation of degradation could provide a useful information on the persistence of the termiticides after application in the soil. In this study, the degradation and half-life of three commercially available termiticides i.e. fipronil, bifenthrin and imidacloprid were examined using UPLC-PDA analysis. All termiticides highly degraded with fipronil being the most persistent termiticide as 1.4% of its residual remained in the soil after 20 months and was consistent over two years of application compared to the other two termiticides. Imidacloprid degraded the most, exhibiting ~98% of degradation in the first month and completely degraded after one year of application.

Key words: Termiticides, degradation rate, half-life, termites, Ultra Performance Liquid Chromatography (UPLC)