

Discriminant analysis as a tool for detecting the acoustic signals of termites *Coptotermes curvignathus* (isoptera: rhinotermitidae)

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Abstrak

Various methods for termite detection have been developed, one of them is purely based on the acoustic signal. However, that method still has a weakness, wherein it is difficult to separate the signal generated by the termite or the noise from the environment. The combination of the feature extraction at the acoustic signal and the classification model is expected to overcome the weakness. In this investigation, we inserted 220 subterranean termites *Coptotermes curvignathus* into pine wood for feeding activity and observed its acoustic signal. In addition, three acoustic features (i.e., short-term energy, entropy and zero moment power) were proposed to recognize the termite's acoustic signal. Subsequently, these features will be analyzed and combined with discriminant analysis to produce the robust classification model. According to the numerical results, the integrated discriminant analysis and the acoustic feature in our termite detection system has an 83.75% accuracy.