Fumigant Toxicities of *Chromolaena odorata* against *Macrotermes carbonarius* and *Globitermes sulphureus*

Fauziah Abdullah1, Mohd Shukri Mohd Sabri1, Nor Hidayah Mamat1, Rafidah Isa1, Sri Nurestri Abdul Malek1 and Lee Guan Sern1

1 Institute of Biological Science, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia. Telephone: 603-7967 6731, Fax: 603-7967 4178

2 Centre for Research in Biotechnology for Agriculture (CEBAR), Level 5, Block B, IPS Building University of Malaya, 50603 Kuala Lumpur, Malaysia. Tel: 603-7967 6993/6990/6981; Fax: 603-7967 6991

ABSTRACT

*Chromolaena odorata* which can be found in Malaysia was examined for insecticidal properties against termites *Macrotermes carbonarius* and *Globitermes sulphureus*. The results showed the essential oil of stem and leaves of *C. odorata* had fumigant toxicities against both species of termites. Probit analysis showed that *M. carbonarius* were more susceptible than *G. sulphureus* with workers more susceptible than soldier termites. In fumigant assays, LC50 value for *M. carbonarius* worker was 44.7 ppm after 24 hours work while for worker *G. sulphureus* worker the LC50 was 1118.92 ppm. Similarly the soldiers of *M. carbonarius* are more susceptible than soldiers of *G. sulphureus*. The LC50 for soldier *M. carbonarius* was 778.4 ppm while the LC50 was 1568.1 ppm for soldier *G. sulphureus* at 24 hours. Analysis using GC/FID and GC/MS revealed a number of potential compounds responsible for the mortality of both species of termites. Both stems and leaves of *C. odorata* essential oil could be used as an alternative protectant for wood and products of wood against termites.

KEYWORDS: *Chromolaena odorata*, *Macrotermes carbonarius*, *Globitermes sulphureus*, Essential oil, Natural pesticides.