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Biotechnology :
Breakthrough for the Future of
Industrial Challenges in Developing Countries

PROCEEDING

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Chemical composition and **Larvicidal Activities of essential oil of Piper betle from the Indonesian Plants against** *Aedes aegypti* L

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May,2010

Abstract

Aedes aegypti are the most important of insects well-known for their public health importance, since they act as vector for many tropical and subtropical diseases such as dengue fever, yellow fever. Aedes aegypti *L. is the major vector of dengue fever, an endemic disease in Indonesian.* In view of the recently increased interest in developing plant origin insecticides as an alternative to chemical insecticide, this study was undertaken to assess the larvicidal potential of the essential oil composition chemical of Piper betle from the Indonesian plants against medically important species of mosquito vectors, *Aedes aegypti L'*. Methods: The essential oil was extracted by steam distillation and their chemical composition determined by GL –Chromatography couple to mass spectroscopy. Bioefficacy of the essential oil composition chemical was evaluated under laboratory conditions using III – IV instars Aedes aegypti larvae. were analyzed by measurement of their LC50. Results: Among the chemical composition of the essential oil are eugenol, kavikol and estragol, eugenol was the most sensitive (LC 50 = 40, 6 ppm), followed by kavikol (54, 9 ppm) and estragol (57, 6 ppm). Interpretation & Conclusion: From the results it can be concluded that the *Aedes aegypti* larvae was susceptible to the eugenol. Such findings would be useful in promoting research aiming at the development of new agent for *Aedes aegypti* larvae chemical compounds from indigenous plant sources as an alternative to chemical larvisides.based on bioactive

Key words: larvicidal activity - *Aedes aegypti* - essential oils – eugenol, dengue