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Larvicidal activity of bruceine a against aedes aegypti and toxicity on vero cells (Article) (Open Access)

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Vector control is still based on the use of chemical insecticides, which can cause death of nontarget animals, pollution and the emergence of vector resistance. This study aims to assess the larvicidal activity of bruceine A against larvae of Aedes aegypti and its cytotoxic activity against Vero cells. Extraction and isolation of bruceine A from the seeds of Brucea javanica (L.) Merr by method of Subeki. The purity of bruceine A isolate is determined by using a thin layer of chromatography and high performance liquid chromatography. Larvicidal activity of bruceine A on the larvae of A. aegypti from instar III until the beginning of instar IV was measured using a bioassay method. The examination of bruceine A cytotoxicity on Vero cells was performed by Micro-culture Tetrazolium assay (MTT). The results showed that mortality of A. aegypti larvae increased with increasing concentration of bruceine A. Log probit analysis of the larva mortality showed that the lethal concentration 50 and 90 (LC_{50}, LC_{90}) were 0.453±0.022 ppm and 4.962±0.681 ppm for 24 h respectively. The cytotoxic activity of bruceine A in Vero cells is low, with inhibitor concentration 50 (IC_{50}) values of 1251.324±0.162 µg/mL. Bruceine A has larvicidal activity against A. aegypti; therefore, it is a potential natural larvicide with low cytotoxicity. © 2018 Dwi Sutiningsih, Mustofa, Tri Baskoro Tunggul Satoto and Edhi Martono.

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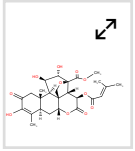
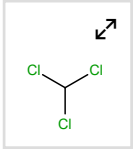

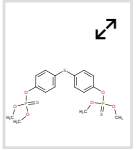

Author keywords

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1 Abbott, W.S.

A method of computing the effectiveness of an insecticide. 1925.

(1987) *Journal of the American Mosquito Control Association*, 3 (2), pp. 302-303. Cited 301 times.

2 Badisa, R.B., Darling-Reed, S.F., Joseph, P., Cooperwood, J.S., Latinwo, L.M., Goodman, C.B.

Selective cytotoxic activities of two novel synthetic drugs on human breast carcinoma MCF-7 cells

(2009) *Anticancer Research*, 29 (8), pp. 2993-2996. Cited 148 times.

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3 Bawm, S., Matsuura, H., Elkhateeb, A., Nabeta, K., Subeki, Nonaka, N., Oku, Y., (...), Katakura, K.

In vitro antitrypanosomal activities of quassinoid compounds from the fruits of a medicinal plant, Brucea javanica

(2008) *Veterinary Parasitology*, 158 (4), pp. 288-294. Cited 35 times.
doi: 10.1016/j.vetpar.2008.09.021

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4 Bhattacharjee, S., Gupta, G., Bhattacharya, P., Mukherjee, A., Mujumdar, S.B., Pal, A., Majumdar, S.

Quassin alters the immunological patterns of murine macrophages through generation of nitric oxide to exert antileishmanial activity (Open Access)

(2009) *Journal of Antimicrobial Chemotherapy*, 63 (2), pp. 317-324. Cited 41 times.
doi: 10.1093/jac/dkn479

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5 Chaithong, U., Choochote, W., Kamsuk, K., Jitpakdi, A., Tippawangkosol, P., Chaiyasit, D., Champakaew, D., (...), Pitasawat, B.

Larvicidal effect of pepper plants on Aedes aegypti (L.) (Diptera: Culicidae)

(2006) *Journal of Vector Ecology*, 31 (1), pp. 138-144. Cited 69 times.
doi: 10.3376/1081-1710(2006)31[138:LEOPPO]2.0.CO;2

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6 Chen, Z., Newcomb, R., Forbes, E., McKenzie, J., Batterham, P.

The acetylcholinesterase gene and organophosphorus resistance in the australian sheep blowfly, lucilia cuprina

(2001) *Insect Biochemistry and Molecular Biology*, 31 (8), pp. 805-816. Cited 108 times.
doi: 10.1016/S0965-1748(00)00186-7

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7 Choochote, W., Tuetun, B., Kanjanapothi, D., Rattanachanpichai, E., Chaithong, U., Chaiwong, P., Jitpakdi, A., (...), Pitasawat, B.

Potential of crude seed extract of celery, Apium graveolens L., against the mosquito Aedes aegypti (L.) (Diptera: Culicidae)

(2004) *Journal of Vector Ecology*, 29 (2), pp. 340-346. Cited 81 times.

8 Dharmagadda, V.S.S., Naik, S.N., Mittal, P.K., Vasudevan, P.

Larvicidal activity of Tagetes patula essential oil against three mosquito species

(2005) *Bioresource Technology*, 96 (11), pp. 1235-1240. Cited 141 times.
doi: 10.1016/j.biortech.2004.10.020

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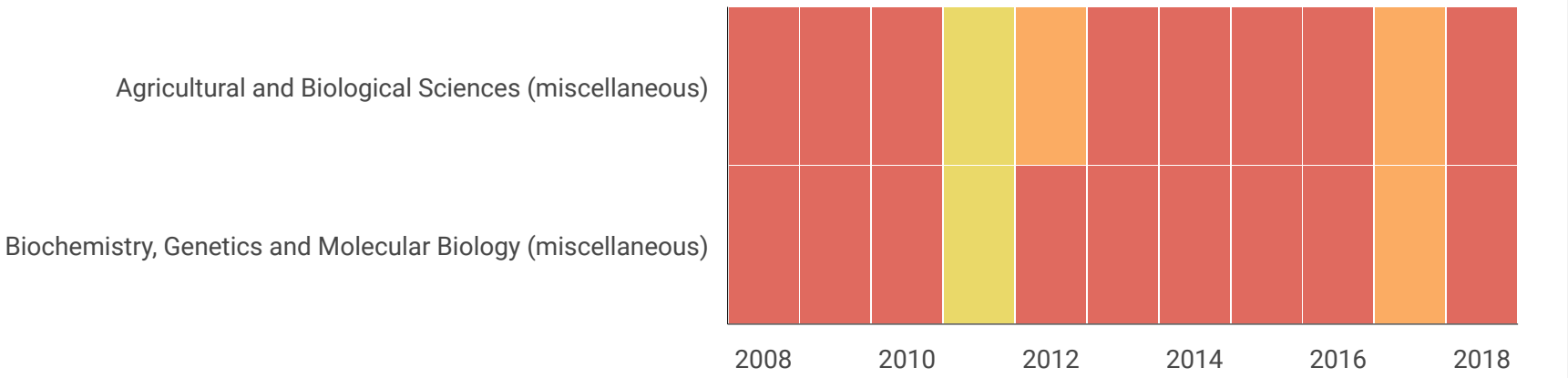

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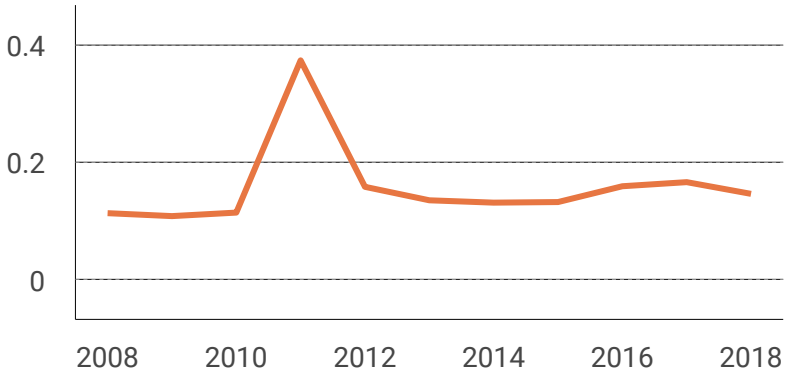

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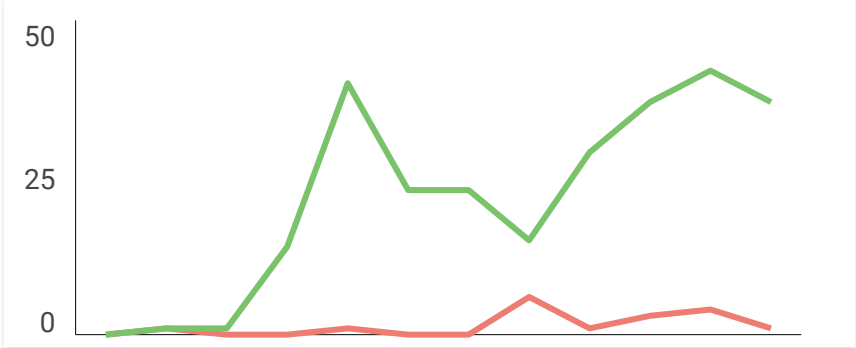

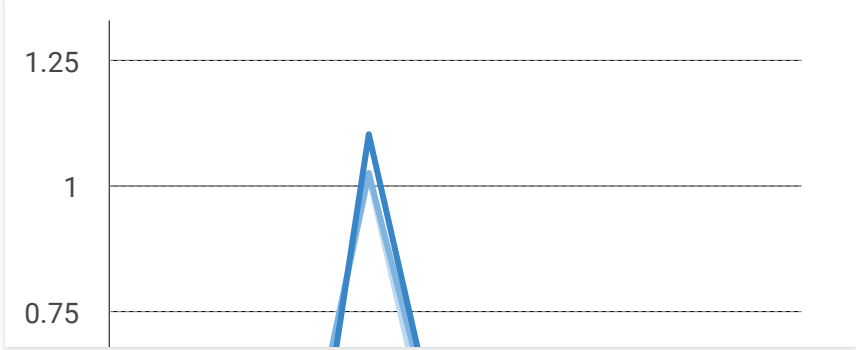

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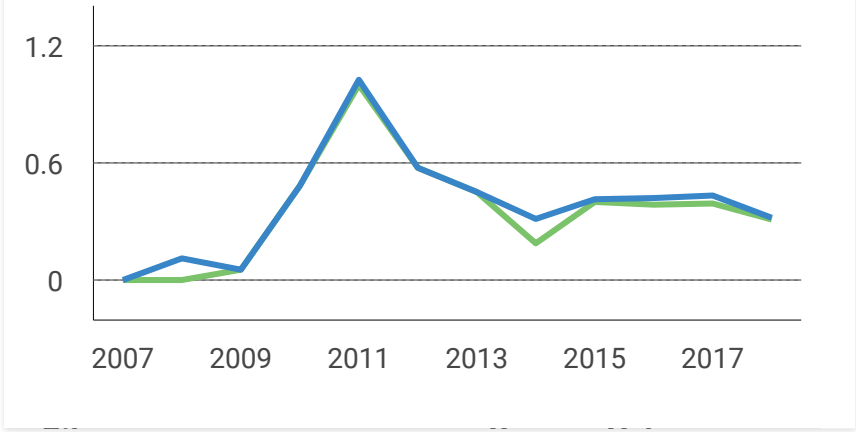

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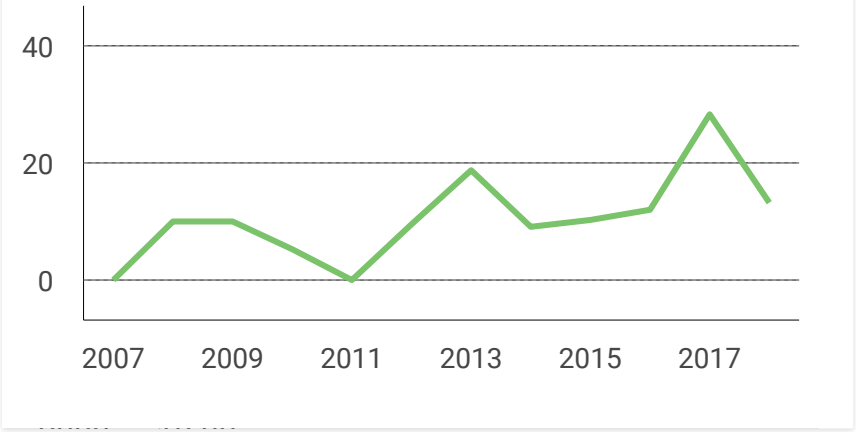

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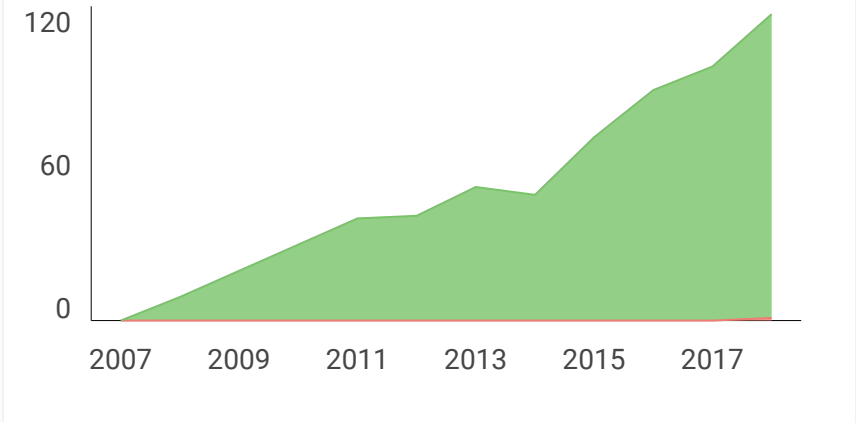

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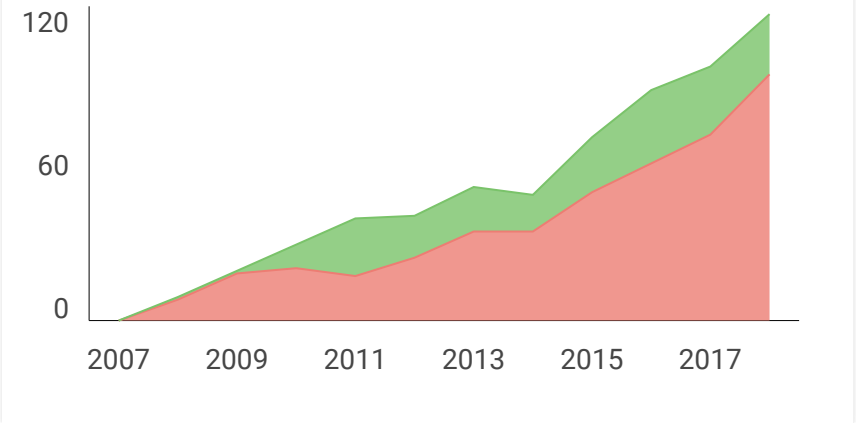

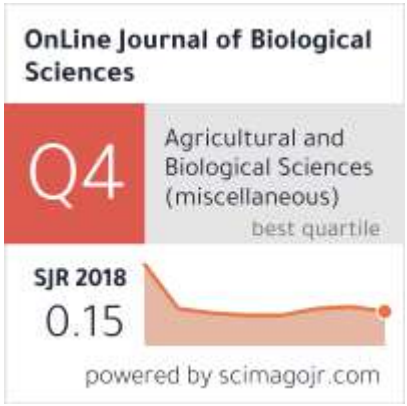

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