The Effect of tobacco extracts based biolarvicide emulsion formulation against Aedes aegypti larvae (article on AIP Conference Proceedings 2092)

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ABSTRACT
The tobacco extract has larvicidal activity because it contains nicotine and some toxic compounds. The need to
form tobacco extracts in nanoemulsion was due to its smaller particle size, larger surface area, and slow release of active
compounds. This study aims to evaluate the effectiveness of tobacco extract nanoemulsion against Aedes aegypti larvae.
Nanoemulsion tobacco extract is made by high energy method using ultrasonication with frequency 20 kHz for 45 minutes.
The tobacco extract was mixed with Tween 20 surfactant with the ratios are 1:0.5, 1:1, and 1:3 (w/w). From the result,
bioassay test of larvicidal nanoemulsion with LC50 was 823.74 ppm (F1:0.5), 702.07ppm (F1:1), and 578.48 ppm (F1:3),
lower than LC50 of tobacco leaf extract without nanoemulsion 1022.97 ppm. The decrease in LC50 values was directly
proportional to the decrease in particle size. The lowest LC50 values are obtained by the formula F1:3 with an average
particle size of 631 nm. This study shows that even if the nanoemulsion was not achieved, the emulsion of tobacco extract
is potential to control the Aedes aegypti mosquito larvae effectively, due to lower than 750 ppm LC50 for (F1:1 and F1:3,
24 hr).