Test of a mosquito eggshell isolation method and sub-sampling procedure

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Abstract

Production of Aedes vigilax, the common salt-marsh mosquito, can be assessed by determining eggshell densities found in soil. In this study, 14 field-collected eggshell samples were used to test a subsampling technique and compare eggshell counts obtained with a flotation method to those obtained by direct examination of sediment (DES). Relative precision of the subsampling technique was assessed by determining the minimum number of subsamples required to estimate the true mean and confidence interval of a sample at a predetermined confidence level. A regression line was fitted to cube-root transformed eggshell counts obtained from flotation and DES and found to be significant ($P < 0.001$, $r2 = 0.97$). The flotation method allowed processing of samples in about one-third of the time required by DES, but recovered an average of 44% of the eggshells present. Eggshells obtained with the flotation method can be used to predict those from DES using the following equation: DES count = [1.386 x (flotation count)0.33 - 0.01]3.

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