

## **DIAMETER AND UNIFORMITY OF DROPLETS PRODUCED BY KNAPSACK SPRAYER WITH DIFFERENT CONCENTRATIONS OF WATER AND OIL, AND ADJUVANT**

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Human diseases transmitted by insects are still in great importance at Tropical Climate Countries, as Brazil is. Mosquitoes are one of the main groups of insects that could transmit those diseases, called vectors. The aim of this work was to evaluate the diameter and uniformity of droplets produced by knapsack sprayer, with different concentrations of water and oil, and water and oil plus adjuvant to adapt the technical requirements of nebulization predetermined with the insecticide diluted in water and oil, respectively. Experiments were carried out at the Laboratory of Particle Size Analysis (LAPAR), at the Department of Fitossanidade at UNESP, Campus of Jaboticabal-SP, Brazil, between 01-22-09 and 07-23-09. It was used the insecticide malathion 500 EC in the dosage of 1 mL/L, which was sprayed by Multispray – JACTO sprayer. Equipment was placed in a distance of 40 cm of laser beam for spraying and evaluation. The syrups with malathion received 6 concentration of oil, 0; 6.25; 12.5; 25; 50 and 100%. For the second experiment added 1 mL/500 mL sprayed of adjuvant alquil phenol (Iharaguen-S). Diameter and uniformity of droplets produced by sprayer were evaluated. Analyzed parameters were:  $Dv_{0,5}$  (DMV), span and percentage of droplets less than 15  $\mu\text{m}$ . Analysis of variance and averages compared by Tukey's test ( $p < 0.05$ ) were used for both experiments. The experimental design was completely randomized. For percentage of droplets less than 15  $\mu\text{m}$ , the sprayer had presented less than 20%. Although, on the second experiment which was added adjuvant, droplet size became lower. In relation to DMV, values were within scale considered in good in efficacy against flies and mosquitoes and addition of adjuvant.

**Key Words** Droplet size, public health, spraying, insecticide