EVALUATION OF SUSPENSIBILITY IN BIO-INSECTICIDES

Rita de Cassia Boccuzzi Prisco; Maria Piedade;Vera Lucia Tedeschi Savoy

Instituto Biológico, São Paulo, Brazil

rprisco@biologico.sp.gov.br

Biological control has been widely used as an alternative to chemical insecticides, since the indiscriminate use of these chemicals can cause environmental pollution, risk of poisoning in humans and animals, pest resistance to insecticides assets and destruction of natural enemies, among other side effects. In Brazil, the use of bio-pesticides is focused on pest control in agriculture and they must meet the requirements of quality control described in Law 7802 of the Ministry of Agriculture, Livestock and Supply (MAPA). The aim of this study was to control the suspensibility, among other physical and chemical quality tests, of bio-pesticides formulated as wettable powder (WP) and dispersible granule (WG).

Suspensibility assays were performed with eight insecticides, seven formulated as WP and one as WG, according to the norm of the Brazilian Association of Technical Standards (ABNT) - “ABNT NBR 13313 Pesticides and related compounds – Suspensibility”, and all tests were performed with seven replicates at the Laboratory of Environmental Chemistry of the Biological Institute.

According the norm ABNT NBR 13313, the suspensibility test is conducted with 2.5 g of the product humidified in water of 20 ppm hardness at (30 ± 2) ° C, homogenized and transferred to the 250 ml test tube. After completing the volume, the test tube is capped and inverted 30 times, once every 2 s, and kept immersed until the 250 mL mark in a thermostatic bath at (30 ± 2) °C for 30 minutes. Then, by means of vacuum, the suspension is suctioned until the 25 mL mark and the tenth part is quantitatively transferred to a previously weighed porcelain cup. The residue is dried in an oven at (40 ± 2) °C until constant weight. The suspensibility is expressed by percentage weight / weight (w / w), the minimum value allowed by regulamentation is 50% w / w for insecticides.

Of the eight bio-insecticides evaluated in the suspensibility trial, six of the seven WP formulations were within the 50% w / w threshold, and the WG formulation showed suspensibility values below the threshold of 50% w / w.

The results allow a better understanding of the formulations using living organisms for pest control in agriculture.

For the suspensibility test when applied with WP bio-insecticides it was not necessary to change the standard procedure for preparing the emulsion, whereas in the case of the WG formulation it was necessary to suspend the product while stirring under ultrasonic agitation for the later transfer to a 250 mL test tube and to perform the test.

The physical-chemical tests are important to determine the quality of the formulations, which is directly linked to the selection of the appropriate type of equipment for field application and therefore for the effectiveness of the product on the target organism. Given the important role of bio-pesticides in agriculture, it is necessary to adjust standards with specific parameters for these products, and it seems impossible to apply the same limits and methodologies used for quality control of chemical products.