

Bovine Ticks Control Efficiency of Acaricide Samples Collected from a Spray Tank and Oxidative Treatment for Residual Water Decomposition

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The inadequate application of tick baths is responsible for reducing the efficacy of the products. This study investigated the efficacy of samples of a commercial acaricide (15g of cypermethrin, 25g of chlorpyrifos and 1g of citronelal) on engorged *Rhipicephalus (Boophilus) microplus* females and the efficiency of oxidative treatments on the reduction of the acaricide's active ingredients. Four different amount of acaricide dilution were evaluated, and the wastewater containing the acaricide's residue were submitted to two Fenton's oxidation conditions, without and with mixing in a mixing camera. In other treatment, it was three hours exposed to sunlight. Distilled water was used as control. Tick females were immersed for five minutes in the solutions, in triplicate, and incubated for subsequent analysis of the biological parameters. The reduction of the active acaricide ingredients were measured by the residual carbon content (RCC) and by GC/MS. The mean efficacy of the acaricide in the treatments varied from 0% (control) up to 72% (addition of the acaricide according to the label insert instructions, 1:800 v/v). The results demonstrate that the water in the tank still had acaricide residues. The presence of Fenton's reagent drastically reduced the RCC, making it a promising waste treatment, with decomposition efficiency of 53% and 79% without and with mixing, respectively. The reduction of the cypermethrin and chlorpyrifos was from 89% up to 98%. Otherwise, these treatments were still lethal to the engorged female ticks probably because of a subproduct reaction.