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FACULTY OF APPLIED SCIENCES

DEPARTMENT OF APPLIED CHEMISTRY

FORMULATION OF ABAMECTIN

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A research project undertaken in partial fulfilment of a Bachelor of Science (BSc) Honours Degree in Applied Chemistry

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ABSTRACT

Ticks, as obligate blood-sucking ectoparasites, attack a wide range of vertebrates and transmit a large diversity of pathogenic microorganisms. Ticks have developed a resistance towards pesticides that are used in controlling their spread. The continued use of the same pesticides has led to the development of resistance. Thus new pesticides with greater efficacy than those already in existence are needed to minimize resistance. This project chronicles the formulation of Abamectin, a veterinary drug for eradicating ticks, with the impetus being on producing a product with enhanced solvency, stability and efficacy. During the course of the project, four trial batches of Abamectin each with a different concentration were manufactured and put to an array of tests including and not limited to, pH tests, specific gravity tests, HPLC assays and efficacy tests on the two tick species, the *Boophilus decoloratus* and the *Amblyomma hebraeum* ticks. This project was able to develop an Abamectin formulation that had excellent physical properties with a high efficacy as during the trial tests on the aforementioned ticks, Abamectin induced mortality in all experimental treatments. No mortality was recorded for both species of ticks in the control treatments indicating that Abamectin was the sole toxicant in the formulation manufactured. There is enough evidence to suggest that Abamectin is a potential anthelmintic for the effective eradication of tick infestations.