

POTENTIAL OF BAYATI (*Albizia coccoloba*) FRUIT EXTRACT
AS CONTROL OPTION AGAINST ADULT, NYMPH
AND LARVA OF *Rhipicephalus microplus*

THESIS

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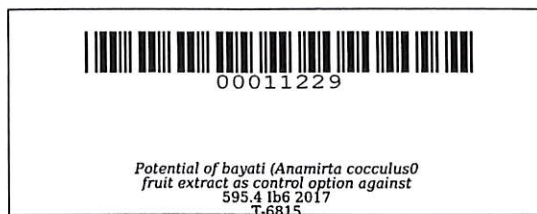
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POTENTIAL OF BAYATI (*Anamirta cocculus*) FRUIT EXTRACT
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ABSTRACT

IBONG, MA. LYRA IBONG A. Potential of Bayati (*Anamirta cocculus*) Fruit Extract as Control Option against Adult, Nymph and Larva of *Rhipicephalus microplus*. Undergraduate Thesis, Doctor of Veterinary Medicine. Cavite State University, Indang, Cavite. May 2017. Adviser: Chester Joshua V. Saldaña, DVM, MS.

A study was conducted to determine the potential of Bayati (*Anamirta cocculus*) fruit extract as control option against adult, nymph and larva of *Rhipicephalus microplus* and determine the median lethal dose of the extract on laboratory mice.

A total of one thousand and five hundred (1500) adult, nymph and larva of *Rhipicephalus microplus* were manually collected from ten (10) naturally infested goats, acclimatized for two hours inside the petri dish and sprayed with 5, 10, 15 and 20% concentrations of *Anamirta cocculus* fruit extract. Distilled water and 0.5% aqueous Sodium Dodecyl Sulfate (SDS) solution served as negative controls while 5% Sevin served as positive control. Tests were replicated ten times. The numbers of dead adult ticks were counted at 15, 30, 60, 180 and 360 minutes post exposure. Mortalities were computed, tabulated, analyzed and compared using analysis of variance (ANOVA).

Results of the study revealed that *Anamirta cocculus* fruit extract possess insecticidal activity against adult, nymph and larva against *R. microplus* at 5, 10, 15 and 20% concentration with 100% mortality obtained at 360 minutes, 180 minutes and 60 minutes post exposure, respectively. The 20% concentration was shown to be the most effective in killing ticks at all life stages with the shortest time of 60 minutes for larva, 180 minutes for nymph and 360 minutes for adult tick. Among the different life stages, the larva were demonstrated to be the most susceptible having 100% mortality at 60

minutes post exposure. The differences in mortality rates among different concentrations of the fruit extract were statistically significant. On the other hand, the application of distilled water and 0.5% SDS resulted in significantly lower mortality compared to the treatment groups but not statistically significant while the application of 5% Sevin resulted in higher mortality but comparable with treatment groups at same exposure time. The lethal concentration of Bayati fruit extract (LC_{50}) among ticks is 5% at 60 minutes for the adult tick and nymph while 5% at 30 minutes for larva. The higher Bayati concentration the faster it kills all ticks; the longer exposure time the lower the concentration needed to kill all ticks.

Median lethal dose was tested in laboratory mice by oral administration with *Anamirta cocculus* fruit extract in increasing dosage. The test showed that there was no lethal effect on laboratory animals as indicated by absence of mortality after 14 days post administration although signs of toxicity were observed during the first 24 hours.

Based on the results obtained, *Anamirta cocculus* fruit extract at 5, 10, 15 and 20% concentrations possess insecticidal activity against adult, nymph and larva of *Rhipicephalus microplus*. This may indicate that *Anamirta cocculus* fruit extract is a potential control option for goat tick infestation without harming the host.

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An undergraduate thesis manuscript submitted to the Faculty of the College of Veterinary Medicine and Biomedical Sciences, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Doctor of Veterinary Medicine with Contribution No. _____. Prepared under the supervision of Dr. Chester Joshua V. Saldaña.

INTRODUCTION

Goats play important roles in the livelihood of farmers as they provide a vast range of products and services, such as meat, milk, hide and skin, hairs, horns, bones, manure, security, gifts, religious rituals and medicine (Sertse and Wossene, 2007; Anyanwu, 1998). However, ectoparasites that impinge on goats reduce their capacity to provide the above mentioned products and services. Ectoparasites particularly ticks are important parasites because of their voracious blood-sucking activity and as vectors of various agents of diseases in both humans and livestock (Hashemi-Fesharki et al., 1994; Cumming, 1998).

While multiple attempts at eradication are being made to control these ectoparasites, many ectoparasites of domestic livestock remain a persistent problem in the modern world. For many years, a range of pesticide drugs including organophosphates, organochlorides and synthetic pyrethroids provided effective control of these parasites; but intensive use of these acaricides has led to the development of resistant tick