



Studying the Effectiveness of Some Plant Extracts in the Control of hard ticks which Isolated from Sheep

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Abstract:

The tick is an external parasite it causes many diseases to animals and humans by transmission of some parasite in bite, such as red water, louping disease, Bukovinian and it causes economic damages to field crops and the Global warming and deforestation have resulted in the many living creatures including insects. The aim of this study is to investigate the repellence of the effects of Ethanol extracts of two plant species of orange (*Citrus sinensis*) peel and oak (*Quercus infectoria*) both separately in controlling of hard ticks (Ixodidae). The present study also detection the chemical compound of the extracts of the knowledge of the tobacco industry's own effective study materials where the oak extract containing the alkaloids and glycosides while the orange peel extract hasn't these active substances the results indicated to the superiority of the oak extract on the orange peel extract where the concentration of 400 mg / ml fastest in killing ticks in the duration 17 minutes and 20 minutes when treated by ticks concentration of 200 mg / ml either the time needed to kill ticks in the orange peel extract was a concentration of 400 mg / ml in 30 minutes either a concentration of 200 mg / ml was paralyzed movement of 11 minutes and death in 21 minutes compression between the medicine deltamethrin in concentration of 2% Shell movement ticks within 3 minutes paralysis processes and killed within 31 minutes and have significant differences between the control group of positive transactions and the level of 0.05% appeared the increase in the concentration and the time so effectiveness in kill and control of ticks

Introduction:

Most plants contain compounds that they use in preventing attack from phytophagous (plant eating) insects. These chemicals fall into several categories, including repellents, feeding deterrents, toxins, and growth regulators. Most can be grouped into five major chemical categories: [1] nitrogen compounds (primarily alkaloids), [2] terpenoids, [3] phenolic, [4] proteinase inhibitors, and (5) growth regulators. Although the primary functions of these compounds is defence against phytophagous insects, (1). The fact that several of these compounds are repellent to hematophagous insects could be an evolutionary relict from a plant-feeding ancestor, as many of these compounds evolved as repellents to phytophagous insects (2)

Plants have also been used for centuries in the form of crude fumigants where plants were burnt to drive away nuisance mosquitoes and later as oil formulations applied to the skin or clothes which was first recorded in writings by ancient Greek (3) Common cattle tick *Rhipicephalus (Boophilus) microplus* (Canestrini, 1887), formerly known as *Boophilus microplus* (4) is one of the major species of ticks which is responsible for spreading diseases in cattle industry globally (5) and likewise in Pakistan (6). It is not only accountable for causing anemia as one engorged female, during its repletion, can reduce weight gains in beef calves by 0.6g and also plays a vital role in transmitting protozoal, bacterial and viral diseases (7) Control of cattle ticks chiefly depends upon chemotherapy with synthetic acaricides (8) but has been complicated by the emergence of drug resistance (9,10)



Materials and Methods:

Preparation of plant extract:

The selected plants were collected from their natural habitat, The plants were then dried by oven in the laboratory under 40 c. The dried plants were then ground to powder using a kitchen blender. The powder (500g) was processed for extract preparation by using soxhlet apparatus air dried with alcohol solvent and used for further experiment study (11)

Collection of ticks :

Adult blood ticks were removed & collected from the body of infested cattle for 2 months. ticks were maintained in the laboratory at 25+2c. we used (t test) for analysis the results (12)

Antitick activity test:

After the tick was collected from the infected animals were diagnosed and then placed in plastic dishes and divided into groups where each group was treated with different concentrations of extracts and each extract was sprinkled on a plate. We divided the ticks for 4 group each group contain 30 ticks the group 1-2 used for control and for medicine treatment while the other 2 groups used for plant extract (13)

Result and Discussion:

Several studies have indicated the effectiveness of plant extracts in insect. The two species of plant extract investigated against *R. (B.) microplus* primarily investigation of *Quercus infectoria* and *Citrus sinensis*. The extracts of plants which we used in the research were selected on the availability and cost of treatment. there was a significant interaction effect between solvent and plant species table 1 showed some chemical compound which we found it in the extracts of plant

Table (1): Detection of some compound in the plant extracts

Plant extract	Carbohydrate	Resin	Acids	Saponin	tannin	Alkaloids	Phenol	pH
<i>Quercus infectoria</i>	+	+	+	—	—	+	+	7
<i>Citrus sinensis</i>	+	—	—	+	+	+	+	5.5



Table (2): Mortality in time (min) of ticks at different concentration of plants extracts

Con	<i>Citrus sinensis</i>		<i>Quercus infectoria</i>		control		delta methrein	
	Paralysis time min/	Death/ time	Paralysis time /	Death/ time	Paralysis time /	Death/ time	Paralysis time /	Death/ time
100 mg/ml	10.5	30.4	9.3*	29	11	31	3	31
200 mg/ml	11	23	6.1*	20			-	-
400 mg/ml	5.5*	21	4.8*	17			-	-

Values within the same column followed by stars are statically different ($p < 0.05$)

We used these plant extract on the basis of their reported acaricidal activities frequencies such as The efficiency of the plant extracts of *Citrus sinensis* and *Quercus infectoria* in-life performance of the blue *lucilia sericata* fly The effect of organic solvents for oak peat and orange in the loss of eggs and The superiority of ethyl alcohol, ethyl acetate, and organic solvent mixture for peat plants was 9.16% and 0.99% respectively. The hexane extract of the two plants did not show any effect on the rate of loss of insect eggs. between the two plants, but there are significant differences between the concentrations used. (14)

The results showed that there were significant differences between the control group and the treatments. It was noticed that concentrations of 100,200,400 mg / ml of orange and oak peel extracts used to study the efficacy of this extract against ticks led to paralyzing and then death at different time intervals. the toxicity of the extract with the concentration and the result of it containment of secondary compounds such as the alcohols of the oak extract multiple sugars of orange peels, became contact with the bodies of ticks, which led to his death in the shortest period of time. The idea of investigating the effect of plants to control the tikes has been exploited by The results of our study are similar to those of (15)

They confirmed that orange and oak extract was an insect repellent of the genus *Bophilus*, and that the use of a mixture of petroleum jelly and the extract of oak and oranges had a repellent effect of the tick.

Table (3) Percentage mortality in adult ticks by times (min)

Plant extract	Con. ml/mg	10 min %	20 min	30 min	Mean±SD
<i>Citrus sinensis</i>	100	60.01	65.01	70.05	60.01±4.098824
	200	62.05	68.03	75.06	62.05±5.31
	400	70.2	75.1	80.5	70.2±4.02
<i>Quercus infectoria</i>	100	50.0	70.05	78.01	70.05±14.43332
	200	75.01	100	100	85.05± 7.682363
	400	80.01	100	100	95.04 ± 10.40915
Pesticide (delta methrein)	0.2	73.04	83.4	95.2	83.4±11.0878
Controldistilledwater		10	30	40	30± 15.2752



We prefer used alcohol extract According to (16)The alcoholic extract of the plant was the callistemon more effective than hexane extract and ethyl acetate in the destruction of eggs fly home.The extracts of organic solvents for orange and peat proved effective in reducing the weight of virginity, where the extract of alcohol and then the organic solvent mixture of the orange in reducing the weights of virginity. The effective effect of the extract of the peat is due to the effectiveness of toxic compounds by inhibition of nutrition or affect the enzyme protease in the central (17).

The study was also conducted to evaluate the aqueous extracts and dry powders of *quercus branttilindle*, *eucalyptus camaldelulensis*, and *plantagolanceolata*, in some aspects of life of the mosquito. *Muscadomestica* The equoe extract showed a mortality rate of 78.8 to 51.1% The extracts of eucalyptus and sorrel were less efficient than those, with a mortality rate of 65.5% and 51.10% respectively. The water extract of the peat was also superior to the larvae The percentage of larvae larvae was significantly different between the water extracts of the studied plants. The peat extract achieved the best cumulative loss rate of 83.3%. The sorghum extract recorded the lowest rate and reached 63.7% at a concentration of 5% (18).

the plants that have a repellent reaction to adults can used as pesticide spray because it contains repellent material of any anti-feed away insect for food source. as the plants because it contains toxic substances and this is in line with (19)the results of this study may be agreed with (20) that the aqueous extracts of seeds of *citrullus colocynthis* contains alkaloids, saponin, glycosides and this compounds in contact with cuticle of ticks the study deals with (21)that A decrease in the cuticle thickness was observed, as well as a modification in the distribution of the epithelial cells, which displayed pyknotic and fragmented nuclei, and intensely vacuolated cytoplasm, indicating that these cells would be undergoing death processes

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