

***In Vitro* Acaricidal Activity of Selected Medicinal Plants Traditionally Used Against Ticks in Eastern Ethiopia**

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Abstract

A study was carried out to evaluate the acaricidal activities of crude methanolic extract of leaves of six medicinal plants: *Vernonia amygdalina*, *Calpurnia aurea*, *Schinus molle*, *Ricinus communis*, *Crotobn macrostachys* and *Nicotiana tobaccum* against *Rhipicephalus decoloratus* and *Rhipicephalus pulchellus* using *in-vitro* adult immersion test. Five graded concentrations of the crude extracts; 6.25, 12.5, 25, 50 and 100mg/ml were tested and a change in tick viability was recorded for 24 hours. Diazinon (0.1%) and distilled water were used as positive and negative controls, respectively. Phytochemical screening showed the presence of condensed amount of tannins in all extracts. Starting from 30min post exposure the 100mg/ml concentration of *C. aurea* and *R. communis* extracts has caused significantly higher mortality. Significant increase in tick mortality was started 2hr post exposure with diazinon and 50 and 100mg/ml concentrations of *S. molle*. *Vernonia amygdalina* extract and diazinon showed significant increase in tick mortality 3hr post exposure with 100mg/ml concentration. At 24hr post exposure, diazinon and 50 and 100mg/ml concentrations of all the extracts have caused significantly higher tick mortality than the rest of the concentrations. Higher concentrations of all the extracts had showed a comparable and strong acaricidal effect on *Rh decoloratus* and *Rh. pulchellus* having no significant difference with that of positive control ($P>0.05$) at 24hr post exposure period. Tick killing activity of all evaluated plant extracts increases with increasing exposure time and concentration as well. Thus, all the tested plants could be used against these ticks as potential alternative to substitute commercially available drugs.



Biography:

Jelalu Kemal Birmeka has completed his BSc at the age of 26 years from Addis Ababa University College of Veterinary Medicine and MSc studies from Haramaya University School of Biological Science and Biotechnology. He is an assistant professor at College of Veterinary Medicine, Haramaya University. He has published 30 papers in reputed journals and has been serving as Coordinator of Cooperative Learning and Quality Assurance of the college.

Speaker Publications:

- 1.Jelalu Kemal Birmeka (2014) A review on the public health importance of bovine salmonellosis. *Veterinary Science & Technology* 5 (2), 1.
- 2.Jelalu Kemal Birmeka (2017) Cloacael carriage and multidrug resistance *Escherichia coli* O157: H7 from poultry farms, eastern Ethiopia. *Journal of veterinary medicine* 2017.
- 3.Jelalu Kemal Birmeka (2013) Prevalence of gastrointestinal parasitism of cattle in Gedebano Gutazer Wolene district, Ethiopia. *Journal of Veterinary Medicine and Animal Health* 5 (12), 365-370.



4. Jelalu Kemal Birmeka (2019) Bovine tuberculosis in eastern Ethiopia: prevalence, risk factors and its public health importance. BMC Infectious Diseases 19 ((2019) 19:39), 1-9.

5. Jelalu Kemal Birmeka (2020) In Vitro Acaricidal Activity of Selected Medicinal Plants Traditionally Used against Ticks in Eastern Ethiopia. Journal of Parasitology Research 2020.

[33rd World Congress on Pharmacology](#); Webinar- August 26-27, 2020.

Abstract Citation:

Jelalu Kemal, In Vitro Acaricidal Activity of Selected Medicinal Plants Traditionally Used Against Ticks in Eastern Ethiopia, Pharmacology 2020, 33rd World Congress on Pharmacology; Webinar - August 26-27, 2020.

<https://pharmacology.pharmaceuticalconferences.com/abstract/2020/in-vitro-acaricidal-activity-of-selected-medicinal-plants-traditionally-used-against-ticks-in-eastern-ethiopia>