Bibliography.

(a) TANZANIA


Ethnoveterinay Knowledge practised By Maasai In Simanjiro District In Arusha Region Northern Tanzania Edited By Minja M.M. J and Allport R.D. 2001. 110p


Minja M.M.J. (2002). Validation of albizia anthelmintica as an anthelmintic against helminths in calves. Paper presented at a workshop on browse plants and small ruminants productivity in the tropics held at sokoine University of agriculture from 8th January 2002 to 10th January 2002
b) KENYA
Annotated Bibliography

Title: Ethnoveterinary Knowledge Practised by Maasai In Simanjiro District Northern Tanzania
Author(s): Minja, M.M.J and Allport, R.D.
Year: 2001
Publisher: Dar es Salaam University Press ISBN 9522299 78
Language: English and Kiswahili
Pages: 110
Location: ADRI, VETAID, MINISTRY OF AGRICULTURE LIBRARY

Brief Summary
The book documents on the traditional veterinary (ethnoveterinary) approaches of the Simanjiro pastoralists in the control and treatment of animal diseases. An inventory of medicinal plant resources has been documented as to the species, availability, parts used and their therapeutic usage. A total of eighteen disease conditions controlled and treated in high confidence are described in detail accompanied with illustrative sketches where necessary. The social economic aspects of ethnoveterinary practices are scrutinised with view to understanding the system of knowledge transfer and gender roles. The benefits of Ethnoveterinary practice in the Simanjiro local context are examined vis-à-vis modern drug use.

Title: Ethnoveterinary Knowledge Baseline Survey for Hanang' District
Author(s) Njau P.Z.
Year: 2000
Publisher: Vetaid (Healthy animals – Healthy People)
Language: English
Pages: 45
Location: ADRI, VETAID, MINISTRY OF AGRICULTURE LIBRARY

Brief Summary
The result of the survey indicated that 95% of the people interviewed acknowledged the presence of Ethnoveterinary knowledge (EVK) in the area and around 72% know someone who practices traditional animal treatment. About 82.5% of the people admit the use of local remedies for the treatment of several ailments. Furthermore 85% of these people claim that the animals showed marked recovery. On the average most people know at least three herbs which can be used for treatment. Only 37.5% rated modern medicine as more superior, which implies most people, consider local medicines to be more efficient. The feasibility study in the district revealed that the Iraqw and Barbaig communities have rich but undocumented information on EVK.

Title: Prophylactic and therapeutic efficacy of locally available plant extracts against Newcastle disease in the domestic fowl in Tanzania.
Authors: M.M.A. Mtambo\textsuperscript{a}, E.J. Mushii\textsuperscript{b}, L.D.B. Kinabo\textsuperscript{c}, A. Maeda-Machang'ud\textsuperscript{d}, G.L.M. Mwamengele\textsuperscript{e} and M.G.S. Yongolo\textsuperscript{d}

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Brief Summary
Prophylactic and therapeutic efficacy of a combination of \textit{Opuntia vulgaris} (cactus) \textit{Citrus limon} (lemon) and \textit{Capsicum frutescens} (red pepper) against Newcastle disease (ND) in domestic fowl were evaluated. Two hundred broiler chickens were divided into five groups. Birds from three groups were inoculated with velogenic Newcastle Disease virus strain, whereas birds from two groups were left as controls. Two groups received a mixture of the plant preparation three days prior to inoculation and birds from one group were given a mixture of the plant preparation for two days following development of the clinical signs. Blood samples were collected for haemaglutination inhibition test (HI) for detection of ND virus antibodies. Body weights were monitored during the experiment. Three birds died from the group that was inoculated with ND virus then treated with the plant preparation, two died from the group that received the plant preparation as a prophylaxis then inoculated with ND virus and one bird died from the group that was inoculated with ND virus but not given the plant preparation. No death was observed in any of the birds in the control groups. Antibody titres for Newcastle disease rose four-fold in the inoculated birds but remained low in the un-inoculated groups. Mean body weights of birds in the group that was inoculated with the virus then treated with the plant preparation declined markedly compared to the other groups. The results indicated that there was no prophylactic or therapeutic value of the mixture of the mixture against Newcastle disease. The plant preparation showed a negative effect on body weights in birds with Newcastle disease.

Key words: Newcastle disease; prophylactic; chemotherapeutic; plant extracts
The Phytochemical Profile of *Aloe secundiflora* leaf exudate by HPLC-MS and the bioactivities of the major HPLC fractions.

Authors: Waihenya Rebecca¹, Oliver Kayser², Hansjörg Hagels³, Karl-Hans, Zessin⁴, Mtambo Madundo⁵, Nkwengulila Gamba¹ and Hafez H. M.⁶

A paper presented at the 9th Symposium of The Natural product Research Network for the Eastern and Central Africa (NAPRECA) at Kenyatta international Conference Center (KICC), Nairobi, Kenya. 27th-31st August, 2001

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Brief Summary
Phytochemical analysis of *Aloe secundiflora* var *secundiflora* (Aloaceae) using HPLC-MS has revealed the identity of seven main phenolic compounds occurring within the major peaks. These included phenyl pyrones, anthrones, chromones and several other anthraquinones all constituting 80% of the area under the curve (AUC). *A. secundiflora* was found to contain significant amounts of aloenin, aloenin B and Aloin (A and B), while Isoaloesin D, Aloinside A and B and other unidentified compounds were in low percentage.

In one step semi-preparative HPLC, five fractions were obtained comprising of the main peaks within which the major compounds were identified. All fractions exhibited antibacterial activity of varying degrees, of which the fraction containing aloenin B showed the highest activity against *Salmonella gallinarum* and other bacterial isolates. In the second stage preparative HPLC three major fractions were obtained consisting of the aloenin content 35%, aloin 50% and another fraction consisting of a mixture of aloesin and aloin derivatives. Of these three, aloenin fraction showed the highest inhibition (90%) of viral multiplication of Newcastle disease virus (NDV) in nine day old ECE (embryonated chicken eggs). The aim of the study was to verify the ethnoveterinary use of the exudate as used locally in the prophylaxis of Newcastle disease virus and in control of other bacterial infections in village chickens including fowl typhoid.
The phytochemical profile and identification of main phenolic compounds from Aloe secundiflora leaf exudate by high performance liquid chromatography-mass spectroscopy

Authors: Waihenya Rebecca¹, Oliver Kayser²*, Hansjörg Hagels³, Karl-H Zessin⁴, Mtambo Madundo⁵, Nkwengulila Gamba¹

**Phytochemical Analysis Journal (In press)**

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**Brief Summary**

The phytochemical profile of Aloe secundiflora (Aloeaceae) and the identity of 8 major compounds with the two main constituents have been determined from the leaf exudate of this ethoveterinary used species from some parts of Kenya and Tanzania. Analytical HPLC-MS studies of the exudate have revealed that it comprises of a mixture of phenolic compounds mainly anthrones, chromones and phenyl pyrones with a low content of polysaccharides or aliphatic compounds. A. secundiflora was found to contain significant amounts of aloenin, aloenin B isobarbaloin, barbaloin and other aloin derivatives. Aloenin and aloenin B constituted 35% (m/m), aloin A and aloin B 50% (m/m) and the rest were shared between aloesin and aloin


Title: Antiviral activity of the crude extract and fractions obtained using high Performance Liquid Chromatography of *Aloe secundiflora* against Newcastle Disease virus

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Submitted to *Fitoterapia Journal*

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Brief Summary:
Crude extract of *Aloe secundiflora* (Aloeaceae), and three HPLC fractions containing the major phenolic compounds were investigated for their effects on Newcastle Disease virus (NDV) in embryonated specific pathogen free (SPF) chicken eggs. In semi-quantitative HPLC, three fractions were obtained consisting of the major peaks within which the main compounds were identified by HPLC-MS. The fractions comprised aloenin 35%, aloin 50% and another fraction consisting of a mixture of aloinside, aloesin derivatives and unidentified compounds. Fraction containing aloenin (4mg/mL) showed the highest inhibition (100%) of viral multiplication NDV in nine-day old embryonated chicken eggs (ECE). Fraction containing aloin (10mg/ml) showed 50% reduction while the fraction containing aloinside showed 70% reduction. The crude Aloe extract at 400mg/ml showed 100% reduction while 40mg/ml resulted to 30% reduction. The results of the study provided a scientific verification on the ethnoveterinary use of crude Aloe exudate in the prophylaxis/control of Newcastle disease virus.
Evaluation of the efficacy of the crude extract of the crude extract of *Aloe secundiflora* in chickens experimentally infected with Newcastle disease virus

Authors: Waihenya, R. K¹, Mtambo, M. M. A²* and Nkwengulila G¹


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**Abstract**

Two replicate experiments were carried out to verify the efficacy of *Aloe species* (Aloaceae) as used for the control of Newcastle disease (ND) in rural poultry in free-range systems among several communities in Tanzania. Four months old local chickens free of Newcastle disease antibodies were used. Following inoculation with ND virus, body weights, clinical signs, antibody levels and mortality were monitored. Results showed that there was reduced mortality rate and the severity of clinical signs during the acute phase of the infection in *Aloe* treated chickens compared to the non-treated ones. However, there was no significant effect of the *Aloe* on the antibody levels that were attributed to the recovery of the surviving chickens.

The findings of this study suggest that *A secundiflora* could be a potential candidate on the management of Newcastle disease in chickens. Further studies are in progress to identify the active ingredients of *A. secundiflora* against Newcastle disease virus.
Title: Efficacy of the crude extract of *Aloe secundiflora* against *Salmonella gallinarum* in experimentally infected free range chickens in Tanzania.

Authors: Waihenya, R. K\(^1\), Mtambo, M. M. A\(^2\)*Nkwengulila G\(^1\) and Minga U.M.\(^3\)


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Brief summary:
The ethnoveterinary use of *Aloe species* extract in free-range local chickens against fowl typhoid was investigated. Five months old local chickens, free of antibodies against fowl typhoid were used. The chickens were randomly assorted into five groups including pre treated and infected (G1, n=21), infected and untreated (G2, n=21), infected and treated (G3, n=21), untreated and uninfected (G4, n=10) and treated uninfected (G5, n=10). Groups 1, 2 and 3 were inoculated with \(5.0 \times 10^8\) c.f.u/ml of *S. gallinarum*, following which the chickens were monitored for 15 days. There was a delay on the occurrence of the clinical signs and reduced severity of the disease in the *Aloe* treated chickens (G1 and G3). The mortality rates were 23.8% (5/21) in G1 (pre treated and infected), 42.8% (9/21) in G2 (infected and untreated) and 14.2% (3/21) in G3 (infected and treated). Antibody levels were raised among the infected and untreated group (G2) while they remained relatively low in the *Aloe* treated groups (G1 and G3). However, there was a sharp increase in the levels of interleukin 6 (IL-6) in the *Aloe* treated groups (G1 and G3) as compared to the untreated group (G2) until day-9 post infection. The results of this work indicate that the extract of *Aloe secundiflora* may be used in the control of fowl typhoid in chickens. Studies to determine the active ingredients of the plant extract are in progress.
Title: Antibody and Interleukin-6 (IL-6) response in local chickens infected with Salmonella gallinarum and treated with crude extract of Aloe secundiflora

Authors: Waihenya R. K. 1, Mtambo, M. M. A. 2 and Nkwengulila G. 1

Tanzania Veterinary Journal (In press)

1Department of Zoology and Marine Biology, University of Dar es Salaam, P. O. BOX 35064 Dar es Salaam, Tanzania. 2 Department of Veterinary Medicine and Public Health, Sokoine University of Agriculture P. O. BOX 3021, Morogoro, Tanzania.

Brief summary
One to two weeks old local chickens purchased from Morogoro, Tanzania were vaccinated against Newcastle disease and given prophylactic treatment against bacteria and helminths. At five months of age, the chickens were screened for S. gallinarum antibodies and those found negative were randomized into five groups namely G1, G2, G3, G4 and G5. Birds of G1 (n=21), G2 (n=21) and G3 (n=21) were experimentally infected with 5.0x108 c.f.u/ml of Salmonella gallinarum (RD 8 strain). G1 birds were put on 200mg/kg Aloe extract two weeks prior to infection and were continued with 400mg/kg up to day-7 post infection (pi), G2 were untreated while G3 were treated as from day-0 pi. G4 (n=10) were uninfected and untreated while G5 (n=10) were uninfected but given treatment as in G1. Antibody levels were detected in all infected groups by day-6 pi. From day-9 pi, G2 (infected and untreated) showed significant increase in antibody titre (p <0.05). The treated groups G3 and G1 showed lower antibody levels with G1 (pre-treated) showing significantly lower level (p<0.05) than G3. All groups showed an increment in the levels of IL-6, however, levels in the uninfected groups remained below the cut off point during the experimental trial. Between day-3 and day-6 pi levels of IL-6 in the infected and treated groups (G1 and G3) were significantly high (p<0.05) as compared to G2. Results of this experiment showed that Aloe extract administration in chickens infected with fowl typhoid resulted to lower antibodies to Salmonella and an increment in IL-6 levels before the peak of the antibody production.

It is concluded that the mechanism triggering antibody production was suppressed in Aloe treated birds while the cellular response leading to IL-6 production was enhanced during the initial stage of infection. The Aloe extract could play a role in the immunoprotection to fowl typhoid. This phenomenon could be incorporated into the control strategy of fowl typhoid.
Tittle: Validation of *Albizia anthelmintica* as an Anthelmintic Against Helminths in Calves

Authors: Minja M.M.J.

Paper presented at a workshop on browse plants and small ruminants productivity in the tropics held at sokoine University of agriculture from 8th January 2002 to 10th January 2002

Brief Summary

Traditional healers in both human and animal medicine fields use drug preparations of mainly plant origin for the treatment of various illnesses and injuries. The prohibitive costs of allopathic drugs have rendered popular the use of local recipes in the rural areas of developing countries (McCorkle et al.1996). Scientific investigation of ethnoveterinary practices is aimed at providing guidelines on how best to use the available local remedies. On the other hand scientific investigation can provide clues on how to improve the performance of local recipes. Field information from Simanjiro District (Minja and Allport 2001), based on participatory approaches had revealed that, worm infestation was an all round problem adversely affecting the health of many animals especially the young stock. On this basis, it was agreed between the research personnel and the pastoralists that an experiment to validate one of the local anthelmintics was urgently needed. Out of a number of local anthelmintics *Albizia anthelmintica* appeared to be more reputable. The experiment involved a total of 45 calves aged from 6 months to 1 year with faecal eggs per gram (EPG) of 500 and above. The calves were split into three groups of 15 animals each, representing Control group (untreated), Experimental group (treated with *albizia anthelmintica*) and the Standard group (treated with albendazole –synthetic anthelmintic). Based on the egg reduction in the groups, *albizia anthelmintica* stem bark preparation compared very well with the synthetic anthelmintic (standard) used.