

Bibliography.

(a) TANZANIA

Pettit, G.R., Goswammi, A., Cragg, G.M., Schmidt, J.M., and Jou, J. (1984). Antineoplastic Agents, 103. The isolation and Structure of Hypoestestatins 1 and 2 from the East African *Hypoestes verticillaris*. *J. Nat. Prod.*, **47** (6), 913-919.

Nkunya, M.H.H. (1985). Methyljuglone, Diuvaretin, and Benzyl Benzoates from the Root Bark of *Uvaria kirkii*. *J. Nat. Prod.*, **48** (6), 999 – 1000.

Khan, M.R., Kishimba M.A. and Locksley, H. (1987). Extractives from Ebenaceae. Constituents of the root and Stem Barks of *Diospyros verrucosa*. *Planta Med.*, **53** 498-498

Nkunya M.H.H., Weenen, H., and Koy N.J. (1987). 3-Farnesylindole from *Uvaria pandensis* Verdc. *Phytochemistry*, **26** (8), 2402-2403

Carpani, G. Orsini, F., Sisti, M., and Verotta, L. (1989). Saponins from *Albizia anthelmintica*. *Phytochemistry* **28** (3), 863-866.

O'Hagan, D., Perry R., Lock J.M., Meyer, J.J.M., Dasaradhi, L., Hamilton, T.G., and Harper, D.B. (1993). High levels of Monofluoroacetate in *Dichapetalum braunii*. *Phytochemistry*, **33** (5) 1043-1045

Taniguchi, M. and Kubo, I. (1993). Ethnobotanical Drug Discovery Based on Medicine Men's Trials in the African Savanna: Screening of East African Plants for Antimicrobial Activity II *J. Nat. Prod.* **56** (9), 1539-15646.

Pengsupap, T., Cai, L., Fong, H.H.S., Kinghorn, A.D., Pezzuto, J.M., Wani M.C. and Wall, M.E. (1994). Pentacyclic triterpenes Derived from *Maprounea africana* are Potent Inhibitors of HIV-1 reverse Transcriptase. *J. Nat. Prod.*, **57** (3), 415-418.

Mahuyemba, A.S. (1997). Ecological Niche of Ethnoveterinary Medicine Research *Tanzania Veterinary Journal* Vol. **17** (3) 186-194

Minja M.M.J., Ole Neselle, M., Mziray, W.R., and Daborn, C. (1997). Ethnoveterinary Knowledge (EVK) Research Project at Simanjiro. *Tanzania Veterinary Journal* Vol. **17** (3) 117-128

Ole Lengisugi N.A.M. 1996. The Role of Indigenous Knowledge in Sustainable Ecology and Ethnobotanical Practices Among Pastoral Maasai Olkonerei-le-Simanjiro Experience. Paper presented at the 5th International Congress of Ethnobiology in Association with the Festival of Living Traditions: Old-ways-to the future. K.I.C.C. Nairobi, Kenya September 2-8, 1996

Minja MMJ (1981) Traditional Veterinary Project . Proceedings of the Commonwealth Science Council Meeting in Mauritius. CSC-81 109-115.

Minja MMJ (1984) Utilisation of Medicinal Plants in Veterinary practice. Proceedings of the 2nd Tanzania Veterinary Association Scientific Conference. Vol 2 1984 258 -264.

Minja MMJ (1989) Cardiovascular activity studies of some Tanzanian Medicinal plants : (*Embelia shimperi*, *Burtia prunoides*, *Azadirachta indica*). Paper presented at a NAPRECA conference at Arusha 14th to 21st May 1989.

Minja MMJ (1989) Collection of Tanzanian medicinal plants for Biological activity studies. Proceedings of the 7th Tanzania Veterinary Association Scientific Conference 7 67-78.

Salum M.R. 1996 Preliminary Report on a study of cyanide exposure from cassava peel diet in goats in Southern of Tanzania. Paper presented during the 4th biannual conference of the African small ruminant research network (SRNET) 9 – 13th December 1996 at ILRI Adis ababa – Ethiopia.

Minja MMJ Medicinal Plants used in the promotion of animal health in Tanzania. Rev. Sci. Tech. Off. Int. Epiz. 1994, **13** (3) 905 - 925.

Minja MMJ (1998) The Maasai's Role In The Conservation Of Eco-Systems Through Widespread Practice Of Ethnoveterinary Medicine. Paper Presented At Pastoralists' Ngos Workshop Organised By The Journalists Environmental Association Of Tanzania (Jet) In Collaboration With Panos Eastern Africa Held In Arusha, Tanzania On The 30th August 1998 At the Golden Rose Hotel.

Minja MMJ (1998) Ethnoveterinary Practice And Livestock Health In Simanjiro District, Northern Tanzania. A Paper Presented At The Heifer Project International's Conference On World Hunger : A Cup Of Milk --- A World Of Hope. Little Rock, Arkansas, USA.

Minja MMJ (1999) The Maasai Wonder Plants. Paper Presented At The 'People And Plants' Training Workshop Held At The Tropical Pesticides Research Institute-Arusha Tanzania 15th – 18th March 1999

Kasonta J.S. and Minja M.M.J. (2000) Enhancing Public- Private partnership in Biotechnology: The case of a collaborative Reseach in Ethnoveterinary Knowledge in Tanzania. Paper presented at the BIO-EARN Regional Biopolicy Workshop on Enlarging Public – Private Partnerships in Biotechnology African Centre for Technology Studies (ACTS), Nairobi, KENYA, September 18-19, 2000.

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

Tepilit Ole Saitoti and Carol B. 1993. Maasai. Harry N.Abrams, Inc. 275p

Wood M., (1987) *Different Drums: A Doctor's Forty Years in Eastern Africa*. Clarkson Potter, Inc. New York.

Rodgers W.A. 1992. Rangeland Management Issues in Tanzania. Paper presented at the 3rd PANET workshop held Arusha in December 1992.

Minja M.M.J. (2000) 'The Ethnoveterinary Knowledge Project Carried Out In Simanjiro District From 1997 To 2000'. Paper presented at a Round Up Workshop On The Progress Of The Ethnoveterinary Project at the Simanjiro District Headquarters, Orkesumet, on the 21st February 2000.

Mziray, W.R. (2000) Role Of The National Herbarium Of Tanzania In The Ekv Project. Paper presented at a Round Up Workshop On The Progress Of The Ethnoveterinary Project at the Simanjiro District Headquarters, Orkesumet, on the 21st February 2000.

Msami, H.M. (1999). An occurrence of cattle poisoning by *Dichapetalum* sp in Tanzania. Trop Anim. Hlth. Prod. **31** 1-7.

Massele ,A.Y, Lushiku, J.B., Msangi, W., Fulgence, J and Moshi, M.J. (1987). The therapeutic role of the snakestone in the management of snake bites. Afr. J. Pharmacol **2** 19-23.

Moshi M.J., Parrat J.R., Wainwright, C.L. and Zeitlin, I.J. (1989) Acid optimum kinin-forming enzymes in dog cardiovascular tissues. J. Physiol. (London) **418** 177

Moshi M.J., Zeitlin I.J. and Parrat J.R. (1990). Acid optimum kinin-forming enzymes in rat ventricular myocardium. Eur J.Pharmacol **183** 702

Moshi M.J. Zeitlin I.J. Wainwright C.L. and Zeitlin I.J. (1995). Acid optimum kininogenases in canine myocardium and aorta. Cardiovasc. Res **26** 367-370

Jiwa , S.F.H., Sadik, A.H., Boud, A.A.O. and Maselle R.M. 1996. A two stage concurrent application of pomegranate, *Punica granatum* and Garlic, *Allium sativum* reverses permanently rabbit chronic parasitic dermatitis and inner ear bacterial otitis. Tanz. Vet. Assoc. Scientifi conf. Dec. 1996, A.I.C.C., Arusha, Tanzania. Tan. Vet. J., 16/supp.2., 8-11.

Malele S.R., Moshi M.J., Mwangi J.W. Achola K.J. and Munenge R.W. (1997) Pharmacological properties of *Syzgium guineense* on laboratory rodents. Afr. J. H. Sci **4** (1) 43-47.

Moshi M.J. Uiso F.C., Mahunnah R.L.A. and Swai, A.B.M. (1997). A study of the effect of *Phyllanthus amarus* on blood glucose on rabbits. Int. J Pharmacog **35** (3) 167-173

Moshi M.J. Uiso F.C., Mbwambo Z.H., Kapingu M.C., and Mahunnah R.L.A. (1998). A study of the hypoglycaemic activity of xtracts of *Phyllanthus amarus* In B.M. Abegaz,J.D. Connolly and M.H.H. Nkunya (April 1998). Proceedings of the 7th NAPRECA symposium pg 141-148

H.M. Malebo 2000 Antimalarial flavonoids, Antifungal Styrylpyrones and Hexalobines from Three Annonaceae species, M.Sc. Thesis, University of Dar es Salaam, Tanzania.

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

1. ITDG and IIRR. 1996. *Ethnoveterinary medicine in Kenya: A field manual of traditional animal health care practices*. Intermediate Technology Development Group and International Institute of Rural Reconstruction, Nairobi, 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^a, E.J. Mushi^b, L.D.B. Kinabo^c, A. Maeda-Machang'u^d, G.L.M. Mwamengele^e and M.G.S. Yongolo^d

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Brief Summary

Prophylactic and therapeutic efficacy of a combination of *Opuntia vulgaris* (cactus) *Citrus limon* (lemon) and *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 haemagglutination 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*

Title: **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 aloenin 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.

Title: **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 Kayser^{2*}, 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

Authors: Waihenya R. K.¹, Mtambo M. M. A.^{2*} Nkwengulila G.¹ Kayser O.³, and Hafez H. M.⁴.

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 aloin side, 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 aloin side 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.

Title: **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. A^{2*} and Nkwengulila G¹**

Journal of Ethnopharmacology (2002) **79**(3) 299-304

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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. K¹, Mtambo, M. M. A²*Nkwengulila G¹ and Minga U.M.³

Journal of Ethnopharmacology (2002) **79**(3)317-323

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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 5.0×10^8 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)

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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 5.0×10^8 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.

Title: 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.