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Andy Catley and Ahmed Aden Mohammed

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Ethnoveterinary knowledge in Sanaag region, Somaliland (Part II): Notes on local methods of treating and preventing livestock disease

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Introduction

The VetAid/ACTIONAID Animal Health Programme aimed to offer a primary veterinary service to pastoralists in Sanaag region via a network of trained paravets. Initially the programme supplied the paravets with a limited range of veterinary medicines which were then sold to livestock owners. As the programme developed it encouraged the establishment of private veterinary pharmacies in order to improve the sustainability of the veterinary medicine supply. This approach was based on interviews with herders which showed that they were very aware of the efficacy of modern drugs and were willing to pay for drugs at commercial rates (Catley, 1995). It seemed likely that the presence of VetAid/ACTIONAID in Sanaag had merely delayed the importation of veterinary drugs by local traders.

However, the need for modern veterinary medicines was not felt by all herders. Frequently programme staff interviewed pastoralists who would not use modern drugs even if the drugs were readily available and affordable. These people preferred to use their own traditional methods of treating sick livestock and were often concerned that their animals would become 'addicted' to modern drugs.

In order to understand how these herders responded to livestock disease problems information was collected on local methods of veterinary treatment and preventing disease outbreaks. It was hoped that trials could then be conducted to test the efficacy of some of the most widely used remedies. Local plant remedies are usually less expensive and more readily available than imported drugs, and they do not require special storage facilities (McCorkle and Mathias-Mundy, 1992; Bizimana, 1994). Also, published information on traditional veterinary practice among Somali pastoralists is limited.

The information presented in this paper was collected in Sanaag between March 1993 and January 1994. Much of the data was obtained from key informants in Ceeryan, Goof, Raqas, and Erigavo who were reported to be particularly knowledgeable about traditional veterinary practices. Plants were collected and dried or preserved specimens identified at the Royal Botanic Gardens in Edinburgh, Scotland.

Notes on treatment and prevention of animal health problems

The notes are presented according to the Somali descriptions of livestock diseases used by herders which were explained in detail by Catley and Mohammed (1995). The information is summarised in Table 1 and Table 2.

Generalised and systemic diseases

dhukaan, gendhi, suuqiye (emaciated camels; trypanosomiasis in camels): Traditional treatments for **dhukaan** included drenching with about 50ml of the sap from **dacar** (*Aloe somelensis*) or giving a drench prepared from ostrich eggs. Debilitated animals would also be given **maraq** (soup) prepared from a goat.

garabgoye, garabciid (blackleg or blackquarter in cattle): This disease was treated by **gubis** (burning) across the shoulder joint, base of the neck and axilla. Another treatment was cutting deeply into the flesh of the affected area, a procedure which was thought to allow air into the diseased tissues and promote healing.

kud (sudden death, anthrax, clostridial disease, pasteurellosis and others): Local remedies for **kud** included tying stones collected from Mecca, called **dhagax kud** around the neck of affected animals. These stones were believed to possess holy powers. Affected animals were also be washed or moved into shade to ease the fever.

Diseases of the mouth and abdomen

calaacul (leeches): Leeches were removed physically from their site of attachment, if accessible, or **milix** (salt) was applied to the leech. **Buuri** (tobacco washes, *Nicotiana tabacum*) and **basbaas** (hot peppers, *Capiscum annuum*) were also used. In some areas small catchment

sites were constructed which receive water via a channel with a cloth or grass filter to remove the leeches.

caal (poor body condition, helminthiasis): There were many traditional remedies for **caal** in Sanaag:

- The roots of the plant **harmanle** (*Gnidia somalensis*) were crushed and mixed with water. A dose of 60ml of this solution was used for an adult sheep.
- The leaves and twigs of the plant **qohda** (*Acacia spirocarpa*) were crushed and mixed with water. A dose of 2 tea-cups was used for sheep and goats.
- The soft fleshy roots of the plant **mawe** (*Moringa* sp.) were chopped and mixed with water. A dose of 0.5 litre was used for an adult sheep.
- **Assal**, the bark of **galool** (*Acacia bussei*) was mixed with water and left overnight before drenching.
- Similarly, the leaves of **salamac** (*Cadia purpura*) were crushed into water and left overnight before drenching.
- **Maraq** (goat soap) was used as a drench. This was believed to be beneficial because goats consume a wider variety of plants than other livestock.
- Animals were fed **milix** (salt) or watered at wells with salty water.
- The tree **higlo** (*Cadaba heterotricha*) was thought to have anthelmintic properties when grazed by camels. Sometimes the leaves were crushed and mixed with water, and the solution used as a drench.

daab (diarrhoea in young stock): Treatment for **daab** could involve starving the animal or feeding sour milk. Some herders used **gubis** (burning) on the abdomen of the affected animal. One form of **daab** called **daab geedood** occurred when young animals first began to graze. This condition could also be treated by drenching with **biyo bariis** (the water from boiled rice) or solutions prepared from **assal** (the bark of *Acacia*

bussei) or shaah (tea leaves).

dabahawiye (diarrhoea in camels): **Dabahawiye** was treated with maraq, a sheep or goat broth.

cifasho (bloat, distended abdomen): The treatment for **cifasho** was puncturing the left side of the abdomen to allow the escape of gas from the distended area.

Respiratory diseases

ah (mild respiratory disease in camels): The remedy for **ah** was to administer maraq **ugaadheed**, a soup or broth prepared from the carcase of a wild animal such as a dikdik or gazelle. Another remedy involved burning the skin of a wild animal in the pen of the sick camels so they inhaled the smoke. The process of inhaling smoke or vapours was called **uumis**. The third remedy was to boil the resin of **galool** (*Acacia bussei*) in water and administer this as a drench.

jibaax (coughing in young goats and cattle)

laxawgal (mild coughing in camels)
oofmud (coughing in sheep): The local treatment for **jibaax**, **laxawgal** and **oofmud** was **gubis** (burning) on the skin of the thorax, often in a X-shaped pattern.

sambab (severe respiratory disease in goats, contagious caprine pleuropneumonia, CCPP): Local 'vaccination' practices for **sambab** consisted of cutting the nose of a healthy goat and inserting a piece of fat or lung from a goat which had died from the disease. The area on the nose was then burnt with a hot iron.

sangaale (nasal myiasis): The disease **sangaale** was treated by removing the parasites manually from their site of attachment in the nasopharynx. However, the parasites were often inaccessible and in these cases a solution of **buuri** (tobacco, *Nicotiana tabacum*) was poured into the nose and mouth.

Diseases of the reproductive system

amda hanun (breast pain/mastitis)
candhobarbar (swollen udder/mastitis): The sap of the plant **dhalaama dhuux**, also called **faradheere** (*Entada abyssinica*) was applied to the udder.

faraati (vaginal prolapse): Herders were able to replace vaginal prolapses manually and prevented re prolapse, by suturing the vulva.

mandheer noqosho (retained after-birth): Retained placentae were removed manually.

Diseases of the nervous system

indo hanun (painful eyes, conjunctivitis)

indo jebiye (closed eyes): Eye diseases were treated by soaking the leaves of the plant **irmaan riije** (*Commicarpus ambiguus*) in water and then bathing the eyes with the solution.

muglo (tick paralysis in camels): Camels affected by **muglo** were moved into the shade or washed with water to reduce fever and ticks were removed by hand. If large numbers of camels were affected or seemed to be at risk from **muglo** they were moved to less tick infested areas, sometimes using trucks.

Diseases of the musculoskeletal system

boog (footrot, foot wounds, foot abscesses, lameness): A number of treatments were used for **boog** in sheep and goats:

- If a wound or abcess was present, the area was cleaned with **milix** (salt) and water.
- The gland between the toes was removed and the wound cauterised, **gubis**.
- The milky sap or **dheecaan** of the plants **dharkeyn** (*Euphorbia robeckii*),

dhalaama dhuux (*Entada abyssinica*) or **ugaab tahays** (*Caralluma somalensis*) was applied undiluted to the diseased area.

- The flowers of **ugaab tahays** (*Caralluma somalensis*) were also used as a remedy. These were burnt and the ash applied to wounds or other lesions on the feet.

- The plant **bogoh ujeed** (*Euphorbia hadramautica*) was used to treat **boog** in two ways. It was be tied as a charm around the neck of the animal while quoting verses from the Koran, or the sap from the plant was applied to the diseased area.

- The leaves and twigs of the plants **shanboogsiye** (*Solanum nigrum*) were burnt, crushed and applied to the feet.

- Extracts of ground seeds of **kariiri** bush (*Solanum somalense*, *Solanum coagulans*) were applied to lesions.

- Burnt and dried **dacar** (*Aloe somelensis*) leaves were applied to the lesions.

- **Assal**, the bark of **galool** (*Acacia bussei*, *Acacia horrida*), was boiled and the liquid applied to the feet.

- Ticks were removed by hand if associated with **boog**.

mal (joint-ill, septic arthritis): Herders believed that **mal** was caused by poor blood supply to the affected joint and local treatment was **gubis** (burning).

shimber (wry-neck syndrome in camels) **guudaan**: The treatment for wry-neck syndrome was extensive branding of the neck.

Skin diseases

cadho (mange): Many of the local remedies for **cadho** in Sanaag were based on the milky saps of *Euphorbia* species, such as **darkeyn** (*Euphorbia robecheii*), **falanfalho** (*Euphorbia somalensis*) or **cinjir** (*Euphorbia gossypina*). For mange in camels the sap was used undiluted and was usually applied after the af-

fected areas had been abraided with a stone until the skin bled. The camels were cast and tied for this procedure. For sheep and goats the skin was considered to be more fragile than that of camels and the sap diluted by varying degrees depending on the plant used. If **darkeyn** was used the dilution may be as high as 1:1000.

Other remedies for **cadho** included:

- Boiling the seeds of **kiriiri** (*Solanum somalense*, *Solanum coagulans*) with camel urine and the black sap of **qurac** (*Acacia tortilis*). The hot mixture was applied to skin.

- The roots of the plant **gogobood** (*Iphonia rotundifolia*) were crushed and mixed with water. The solution was applied to skin which had been abraided with a stone.

- The gum found in the large caves in the northern mountains of Sanaag was called **habag god**. The gum was rubbed on to the lesions of **cadho** after abraiding the skin with a stone.

- Saturated salt solution was also used to treat **cadho**. For example the well at Bohol in El Afweyne district was renowned for it's salty water and herders would travel there to treat their camels for **cadho**.

- The wood of the tree **garas** (*Dobera glabra*) was burnt and the ash applied to the skin.

cambaar (skin disease in sheep and goats, ringworm in camels): Local remedies for **cambaar** included:

- Rubbing burnt dung on to the skin, sometimes with soap.

- The sap of the plant **darkeyn** (*Euphorbia robecheii*) was heavily diluted with water, boiled and cooled. On cooling, a gelatinous film formed on the surface of the solution and this was rubbed into the skin.

- Goat or sheep broth **maraq** or ghee, was applied to affected areas. These remedies contain high concentrations of

dufan or fat, and it was this ingredient which was believed to be beneficial.

- Washing affected area with detergent and water.
- Rubbing leaves of *baskalax* (*Zygophyllum decumbens*) on affected areas of skin.

dhaleeco (contagious skin necrosis of camels): A local remedy for **dhaleeco** was dressing the wound with the sap of the plant **gowracato** (*Caralluma socotrana*).

dibeeche, injir (lice infestation): Solutions prepared from the leaves and twigs of **salamac** (*Cadia purpurea*) were used to wash affected animals.

furuq (sheep and goat pox; camel pox; orf): Remedies for **furuq** included the tying of 'secret' plants around the neck of an affected animal while reading verses from the Koran. One such plant was called **faradheer** (*Entada abyssinica*). Many herders knew that **furuq** was prevented by vaccination. Animals suffering from **furuq** were not allowed to visit wells or mix with healthy animals.

shilin (ticks, tick infestation): The most common method of controlling tick infestation was removing ticks by hand. The plants **jinaw** (*Commiphora rostrata*), **baskalax** (*Zygophyllum decumbens*) and **dacar** (*Aloe somelensis*) were also rubbed on to the main infestation sites to kill ticks.

xaqiiqato (enlargement of the pedestal pad in camels): Treatment for this condition was to trim the enlarged pedestal pad with a knife.

Non-specific religious remedies

cashar: was a type of traditional remedy where a group of men sat around a bowl of water and periodically spat into the bowl while reciting verses of the Koran. The water was then poured over sick animals. This procedure tended to

be used for serious outbreaks of disease such as **sambab** or **furuq** when large numbers of animals were affected.

xirsi: was a Koranic text worn as an amulet around the neck of animals or man which was believed to protect the wearer from disease and ill-fate. The word **qardhaas** was occasionally used in place of **xirsi**.

Methods of preventing livestock disease

In addition to the remedies detailed above pastoralists in Sanaag used various methods for preventing livestock disease. For example, the choice of suitable grazing areas was affected by the presence of biting flies or ticks which were known to cause physical damage to stock and transmit disease. At wells there were often specific rules which prevented sick animals mixing with healthy animals and at some wells each family used it's own pan for watering stock. Within the homestead the thorn or stone enclosure used to house livestock at night (**xero**) was regularly cleaned to prevent build up of dung which attracted the ticks, particularly *Rhipicephalus pulchellus* (**garabcad**).

The use of **daran** grazing

For the treatment or prevention of worm infection (**caal**), nasal myiasis (**sangaale**) and tick infestation (**shilin**) many herders in Sanaag grazed their stock on salty, succulent plants called **daran**. If **daran** grazing was not available nearby, herders would sometimes move their animals long distances each year in order to graze on **daran** for a few days. It was the high salt content of the plants which was believed to kill the parasites associated

with these diseases. Other herders linked **daran** grazing to general good health in their animals rather than to specific illnesses.

Three varieties of **daran** were recognised called **daran cad** (*Lagenantha cycloptera*), **daran dinaas** (*Suaeda vermiculata*) and **daran dameer** (*Limonium* sp.). Opinions varied over which of these was the most beneficial. **Daran dinaas** was thought to have a higher salt content than the others and therefore was preferred for treatment or prevention of **caal**. **Daran cad** was thought to be the most nutritious of the three types. Other salty bushes which were used in a similar way to **daran** were **baskalax** (*Zygophyllum decumbens*), **xudhun** (*Suaeda fruticosa*), **qaro** (*Cucumis* sp.) and **carabjeeb** (*Pennisetum setaceum*).

Discussion

During this work traditional remedies for livestock ailments were usually discussed openly by herders and in many areas the various plant remedies were common knowledge. However, in other sites the ability to use plants was restricted to specific individuals who benefitted from treating sick animals. The skills and knowledge of these traditional healers was passed from father to son and was not often shared with the authors.

The notes list more than 70 local remedies for animal diseases, including 32 veterinary medicinal plants. From the summary of remedies detailed in Tables 1 and 2 it was apparent that the most popular local treatments were burning or cauterisation, the use of soups and broths and the use of salt, salt solutions, wells with salty water and salty bushes. In Sanaag broths were given to both debilitated livestock and people and their

effect was probably non-specific and supportive rather than curative. For treatments involving burning and cautery it seems likely that any beneficial effect was limited to superficial tissues rather than internal organs. A similar reliance on burning, soups and salt was described over forty years ago by Mares (1954a, 1954b) who also noted that *Trianthema crystallina* Vahl., *Zygophyllum album* Linn., and *Suaeda* species were all called **daran** by northern Somali. The plant **gulan** (*Salsola foetida* and *Salsola crasse*) was said to provide sufficient salt for eight months if grazed by camels for only ten days. The value of salt in the treatment and prevention of skin disease and arthritis in camels was investigated by Peck (1938, 1939) and Hunt (1951) described the distribution of the salt bushes **higlo**, **daran** and **xudun** in the former Somaliland Protectorate.

In addition to the these remedies plants of the genera *Euphorbia*, *Acacia* and *Solanum* were also commonly used to treat sick livestock in Sanaag. *Euphorbia* species were particularly popular for treating skin diseases such as mange and ringworm. Mares (1954b) noted the use of **cinjir** (*Euphorbia gossypina*) latex to treat mange in livestock in northern Somalia and in Dhofar the latex of *Euphorbia hadramautica*, *E.cactus*, *E.larica* and *E.smithii* was used to treat parasitic skin conditions in camels and goats (Miller and Morris, 1988). In common with Somali, Dhofari herders abraided the skin of the animal before applying the plant sap. *Acacia* and *Solanum* species are widely used as veterinary medicines by various pastoral groups throughout Africa (Bizimana, 1994).

Regarding local vaccination practices in Sanaag the method used to control contagious caprine pneumonia was similar to that described for the prevention of contagious bovine pleuropneu-

monia (CCPP) in the former Somaliland Protectorate (Mares, 1951). Scientific opinion on the effectiveness of the technique varies from scepticism because of the risk of increased disease transmission (Edelsten, 1994) to claims that the procedure is effective for the control of CCPP in goats (Baumann, cited by Heuer, 1993).

Following the collection of the information presented in this paper the authors concluded that further research was required in order to identify 'best bet' plant species for use in clinical trials in the field. In particular it was proposed that searches of ethnobotanical and ethnopharmacological literature might reveal specific plant species for which pharmacologically active ingredients had been isolated. These initial searches would focus on the genera *Euphorbia*, *Acacia*, *Solanum*, *Zygophyllum*, *Lagarantha*, *Limonium* and *Suaeda*. The ultimate aim of the animal health programme was to offer herders informed advice on the most appropriate medicine, either local or modern, to use for the main livestock diseases in Sanaag.

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Notes

(1) Somaliland refers to the self-declared independent Republic of Somaliland which geographically is equivalent to the former British Somaliland Protectorate.

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Résumé

C'est dans le cadre du programme vétérinaire VetAid/ACTIONAID dans la région de Sanaag en Somalie que des informations furent recueillies sur les méthodes locales employées pour prévenir et traiter les maladies du bétail. L'analyse préliminaire démontre que les pasteurs connaissent plus de 70 méthodes et se servent de plus de 30 différentes plantes. *Euphorbia*, *Acacia*, *Solanum*, *Zygophyllum*, *Lagannantha*, *Limonium* et *Suaeda* comptent parmi les plus utilisées. Les auteurs proposent de poursuivre l'enquête afin d'être en mesure de constater leur efficacité.

Resumen

Como parte del programa de sanidad animal "VetAid/ACTIONAID" en la región de Sanaag de Somalia, se ha recogido información sobre métodos locales para tratar y prevenir enfermedades del ganado. Investigaciones preliminares han revelado que los pastores utilizan más de 70 métodos para tratar y prevenir enfermedades, incluyendo estos a más de 30 remedios de plantas. Plantas del género *Euphorbia*, *Acacia*, *Solanum*, *Zygophyllum*, *Lagannantha*, *Limonium* y *Sueda* son las especies usadas más comunes. Para determinar mejor la eficacia de alguna de estas plantas fueron propuestas futuras investigaciones.

Andy Catley BVetMed., MSc., MRCVS is a veterinarian with particular interest in pastoral development. He managed the ACTIONAID Animal Health Programme in Sanaag region between 1993 and 1994. Current address: c/o Save the Children Fund (UK), PO Box 7165, Addis Ababa, Ethiopia.

Ahmed Aden Mohammed BSc., is a former Assistant Lecturer in Animal Husbandry at Lafole School of Agriculture, Mogadishu and currently works as Programme Assistant in the ACTIONAID Animal Health Programme in Sanaag, Somaliland.

Table 1: Plants used for the treatment or prevention of animal health problems in Sanaag.

Plant family	Plant species Botanical name	Plant species Somali name	Livestock disease English name	Livestock disease Somali name
Asclepiadaceae	<i>Caralluma socotrana</i>	gowracato	contagious skin necrosis	dhaleeco
	<i>Caralluma somelensis</i>	ugaab tahays	footrot, foot wounds, boog lameness	
Burseraceae	<i>Commiphora rostrata</i>	jinaw	tick infestation	shilin
Caparidaceae	<i>Cadaba heterotricha</i>	higlo	worm infection	caal
	<i>Zygophyllum decumbens</i>	baskalax	worm infection ringworm	caal cambaar
Chenopodiaceae	<i>Lagarantha cycloptera</i>	daran cad	tick infestation	shilin
			worm infection	caal
	<i>Limonium</i> sp.	daran dameer	nasal myiasis	sangaale
			tick infestation	shilin
	<i>Suaeda vermiculata</i>	daran dinaas	worm infection	caal
			nasal myiasis	sangaale
Compositaceae	<i>Suaeda fruticosa</i>	xudun	tick infestation	shilin
Curcubitaceae	<i>Iphiona rotundifolia</i>	gogobood	worm infection	caal
	<i>Cucumis</i> sp.	qaro	mange	cadho
Euphorbiaceae	<i>Euphorbia gossypina</i>	cinjir	worm infection	caal
	<i>Euphorbia hadraumatica</i>	bogoh ujeed	mange	cadho
			footrot, foot wounds, lameness	boog

	<i>Euphorbia robechii</i>	dharkeyn	footrot, foot wounds, lameness	boog
Graminaceae			mange ringworm tick infestation	cadho cambaar shilin
Liliaceae	<i>Euphorbia somalensis</i> <i>Pennicetum setaceum</i> <i>Aloe somalensis</i>	falanfalho carabjeed dacar	mange worm infection footrot, foot wounds trypanosomiasis – camels tick infestation	cadho caal boog dhukaan, gendhi shilin
Mimosaceae	<i>Acacia bussei</i>	galool	coughing in camels footrot, foot wounds worm infection diarrhoea due to plants worm infection	ah boog caal daab gedood caal
	<i>Acacia spirocarpa</i> <i>Acacia tortilis</i> <i>Entada abyssinica</i>	qohda qurac dhalaama dhux,	mange mastitis faradheere pox diseases worm infection	cadho amda hanun footrot, foot wounds furuq caal
Moringaceae	<i>Moringa</i> sp.	mawe	worm infection	boog
Nyctaginaceae	<i>Commicarpus ambiguus</i>	irmaan riije	eye disease, eye injury	
Papilionaceae	<i>Cadia purpurea</i>	saalamac	worm infection lice infestation	caal injir
Salvadoreceae	<i>Dobera glabra</i>	garas	mange	cadho
Solanaceae	<i>Solanum somalense</i> and <i>S.coagulans</i> <i>Solanum nigrum</i> <i>Capiscum annuum</i> <i>Nicotiana tabacum</i> <i>Gnidia somalensis</i>	kiriiri mange shanboogsiye basbaas buuri harnanle	footrot, foot wounds cadho footrot, foot wounds leech infestation leech infestation worm infection	boog boog calacuul calacuul, sangaaale caal
Thymelaeaceae				

Table 2 Miscellaneous remedies for livestock diseases in Sanaag.

Thymaelaceae	Remedy - English	Remedy - Somali	Livestock disease - English	Livestock disease - Somali
	water from boiled rice	biyo bariis	diarrhoea due to plants	daab geedod
	Koranic verses, chant	cashar	non-specific	non-specific
	stone from Mecca	dhagax kud	sever acute disease, sudden death, anthrax, haemorrhagic septicaemia and others.	kud
	burning, cautery	gubis	footrot, foot wounds, lameness	boog
			diarrhoea in young ruminants	daab
			blackleg, blackquarter	garabciid
			wry-neck syndrome - camels	guudaan, shimber
			respiratory disease - goats, cattle	jibaax
			respiratory disease - camels	laxawgal
			respiratory disease -	oofmud
			pox diseases	furuq
			joint-ill	mal
habag god		gum from caves	worm infection	caal
maraq		soup from goat or sheep	trypanosomiasis - camels	dhukaan, gendhi, suuqiye
			worm infection	caal
			ringworm, skin disease*	cambaar
maraq ugaadeed		soup from wild animal	diarrhoea - camels	dabahawiye
milix		salt, salty water	respiratory disease - camels	ah
uumis		inhalation of smoke	leech infestation	calacuul
xirsi		amulet with Koranic	respiratory disease - camels or vapours	ah
			non-specific	non-specific

* For this treatment of cambaar the soup was applied to the skin.