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Medicinal plants used by Luo mothers and children in Bondo district, Kenya

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Abstract

In a follow-up to studies of school-children's medical knowledge among the rural Luo of western Kenya, seven mothers were asked for their knowledge of plant medicine, and the 91 plant remedies mentioned by them were collected, 74 of these remedies were identified as 69 different species (in 13 cases, the material did not allow identification of the species, in two cases, only the family could be identified, and in two, not even this was possible). The results of this survey and some comments on Luo illness concepts are presented below and briefly discussed in relation to the earlier work on school-children and to another survey of Luo plant medicine in the same district. The article concludes that the consensual core of Luo plant medicine is known by ordinary mothers and their children as well as by recognised healers. It is a shared resource, that is used by women, mainly in the care for their children, and it is not an expert domain of knowledge, as is often, in studies of herbal or 'traditional' medicine are studied. The medicinal plants, upon which many mothers as well as healers agree should be examined further pharmacologically in order to assess their efficacy against the common infectious and parasitic diseases found in this area of western Kenya.

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1. Introduction

Since 1994 we have studied Luo school children's and adults' practices and ideas related to health and illness in Ugingo, a village on the shore of Lake Victoria in western Kenya. In a recent study, we found that school children (13–16 years of age) actively participate in health care within and outside their families, treating both themselves and their younger siblings, whose main

caretakers they often are (see, e.g. Geissler, 1998; Geissler et al., 2000, 2001; Prince et al., 2001; Prince and Geissler, 2001).

These studies raised our interest in the Luo plant remedies used by people in Ugingo and in 1997 we undertook a small ethnobotanical survey. Luo plant medicine appears to be mainly a domain of women's activity (Olenja, 1991) and since we assumed that adult women would have a more complete grasp of this domain of knowledge than children, we decided to base our survey on mothers' knowledge of plant remedies. This article is the first report on the findings of this study, and will summarise the field methodology

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and provide details of the remedies and the medicinal plants, their use and preparation¹. These findings will be briefly compared with our earlier studies on Luo children's medical knowledge, and will be set in the context of other ethnomedical studies. The results of pharmacological laboratory studies, assessing the efficacy of some of these plants will be reported in a subsequent paper.

2. Study area and population

2.1. Geography

The study was conducted in Bondo (formerly part of Siaya) District, Nyanza Province, Kenya. Bondo District extends between latitudes 0°25' S and 0°2' N and between longitudes 34°0' E and 34°33' E. Ugingo, the study village, is in Usigu Division in the south-western part of the District. Usigu Division is bordered to the south by Lake Victoria, and stretches about 15 km into its hinterland. The altitude rises from about 1140 m above sea level (asl) on the lakeshore to, approximately, 1400 m asl in the north and east. With the exception of one river, flowing south-westwards at the northern border and forming a swampy delta to the west of Usigu Division there are no rivers, only ephemeral streams containing water during the rainy season.

Ugingo is situated within 4 km of the lakeshore. There are only three small semi-urban settlements; the majority of people live in scattered homesteads separated by thorny bushland. There are neither prominent hills nor permanent streams in the village territory, and most people depend on the lake for water.

The Lake Victoria basin receives, approximately, 750–1000 mm of rainfall per annum, with the lowest amounts closest to the lakeshore. There are two rainy seasons: the 'long rains' peak in April and the erratic 'short rains' peak in October (Survey of Kenya, 1970; Berg-Schlosser, 1984). Average annual temperatures range from a maximum of 26–30 °C to a minimum of 14–18 °C (Survey of Kenya, 1970). Meteorological information for Usigu Division during the study period followed this pattern. However, Ugingo probably receives less than the average rainfall since it is directly on

the lakeshore, which is why there is only one planting and harvesting season in this area.

The soil in the study area is of volcanic origin, belonging to the 'Nyanzian system', and is predominantly red to strong-brown friable clay with a laterite horizon. Close to the lake, stretches of 'black cotton soil' (grumosolic black clay) are found (Survey of Kenya, 1970). The agricultural quality of the soil is high (Berg-Schlosser, 1984), but the low, unpredictable rainfall keeps crop yields low.

2.2. Society

The Luo (correctly *Johuo*) are patrilineal and virilocal people (for ethnographic details see Ocholla-Ayayo, 1976, 1980; Parkin, 1978; Cohen and Odhiambo, 1989). They practice clan exogamy, which means that women are usually born and raised at some distance from where they later are married and give birth to, and raise, their children. The settlement unit, which lies by itself on lineage land, without any regular villages, is the homestead (*dala*), which ideally consists of a family father, his wives, their children and the married sons' families.

Today, people practice (maize, sorghum, finger millet) is the backbone of the economy, although pastoral ideas and values are reminders of the pastoral origins of the Nilotic Luo. Fishing may provide personal income, while migrant labourers remit essential cash income to their families (see Cohen and Odhiambo, 1989).

Health conditions in the study area are poor by Kenyan standards (GOK, 1992; Friis et al., 1998, 2002). Public health facilities are often short of staff, equipment and medicines, and few people can afford private practitioners. Much health care is thus relegated to the family, and home treatment is common. Pharmaceuticals can be bought from any local shop and injections are often given by family fathers or village relatives rather than by professionals (see Geissler et al., 2000). The most prevalent illnesses, according to government health statistics, are malaria and respiratory tract and intestinal infections (GOK, 1992), although these statistics are based upon outpatient data in government health facilities, and thus may be biased towards diseases, for which treatment is sought here. Stomach problems might have a higher rank among the illnesses experienced by people. Recent studies show high prevalence of malnutrition, anaemia and infectious diseases among school-children in the same village (Friis et al., 1998; Geissler et al., 1998a,b).

3. Luo medicine

Recent ethnography from western Kenya describes Luo medical practice as a pluralistic 'landscape of

¹ We refer to Luo plant taxonomy as 'plant remedies' or 'plant medicine' and to Linnaean taxa as 'medicinal plants'. Thus, each medicine that a woman collected and named for us is counted as a 'plant remedy'. If two women collected different 'medicinal plants' (species) under the same name, we included these as two different 'plant remedies' in Table 1. If two women designated the same species as two 'plant remedies', we did the same. This is necessary since some Luo names are applied to different species and some Linnaean taxa are called by different names. The whole field of plant-based treatments will be designated as 'plant medicine'.

therapy', in which people move between multiple therapy sources (Cohen and Odhiambo, 1989). These range from the district hospital, through private clinics and drug shops to male 'local specialists' and 'homesteads of gifted women' (Cohen and Odhiambo, 1989). In this view, the specialists are the focus and lay people move between them in search of help; medical knowledge and therapy appear confined to medical experts. This expert-focused view still shapes the perception of African 'traditional medicine' (e.g. Nyamwaya, 1992), and it is reflected in approaches to ethnobotanical research among the Luo and elsewhere (Johns et al., 1990 findings point to the problems of this approach) and in policy related to traditional medicine (see Last and Chavunduka, 1986).

Our own fieldwork suggests that this focus on experts misrepresents Luo medicine. For example, we found that 13 year-old children already know most commonly used herbs for the treatment of common illnesses (Prince et al., 2001) and often use herbal medicines without adult consultation (Geissler et al., 2000). Girls expand their knowledge with age and learn about remedies for infant's illness; by school leaving age they have acquired knowledge of most plant remedies that their mothers know and use (Geissler et al., 2000). In an earlier study, we prepared a structured, quantitative 'medical knowledge test' and pre-tested it with mothers of the study children, and found that the range of plants and the agreement between the women was only slightly higher than between the children (Sternberg et al., 2000). In contrast, when we discussed the illnesses and treatments mentioned in this test with the recognised healers (*jothieth*) of the village, they added only a few additional plant remedies that had not been mentioned by either any child or mother, and the healers' responses to the test were very inconsistent and showed little agreement (see also Prince and Geissler, 2001)².

The same 'randomness' of healers' knowledge of plant remedies surprised Johns et al. (1990) in a survey of Luo traditional healers. We think that this finding is not only due to the large study area that their study covered, or to the fact that 'medicinal plant knowledge is a dynamic process' of exploration and experimentation, which Johns et al. (1990) rightly underline; it points to the very structure of Luo medical practice. Western medicine, or biomedicine, is centred on the distinction between trained 'experts' who (potentially) know all medical knowledge and 'laypeople' who know some of it (and, in addition, other, idiosyncratic, popular prac-

tices). In contrast, Luo medicine is based upon communally shared knowledge, which is held especially by women who take care of children's health, and exchange knowledge of plant remedies around this task. Medical specialists, like healers, are only consulted in special situations, e.g. rare or serious illness, and—in contrast to Western doctors—they are not known for the completeness of their knowledge, but for special, often secret treatments (Prince and Geissler, 2001). Similarly, ethnography from other parts of Africa suggests that what in a Western context is categorised as 'lay' practice, peripheral to 'professional' medicine, is here the communal core of medical knowledge, to which specialists only add (e.g. Pearce, 1993). Iliffe (1997) summarises the different structures of East African and biomedical practice—one based on experts, the other on communal knowledge—when he contrasts the 'closed, regulated, authoritarian medical profession' with East African indigenous medicine, which is 'free-for all, pragmatic, eclectic and dominated by patient power'.

Thus, individual healers do not adequately represent Luo medicine. Everybody who is likely to deal with illness possesses medical knowledge. This leads to a gendered distribution of medical knowledge, since most illnesses occur during the first years of life when children are under the care of women³. When people are asked about major health problems, they unanimously point to illnesses of children. This reflects both the epidemiological situation, and the importance of children, human reproduction and the continuity of life in Luo social life (Parkin, 1973). Children's illnesses are taken care of within the family and treatments often employ self-prepared herbal remedies (Geissler et al., 2000). This is particularly the case for infants and young children, since the illnesses that concern mothers most at this age are not biomedically recognised and require long-term herbal treatment in the home; often they cannot, or must not, be treated with pharmaceuticals. Most Luo infant illness-concepts agree that the agents of illness reside permanently in the body (see below), and must, therefore, be treated even if there are no marked symptoms. Small children are surrounded by a continuous low-level treatment activity. 'You use Luo medicine all the time, so that the child grows well' is a common childcare-rule, as well as 'starting early avoids going to the healer'⁴. If one compares the knowledge and activity that is invested every day in the lives of small children to the role healers play in daily life, it becomes clear where the core of Luo medicine rests (see

² We defined 'healer' as a person who regularly treats people in the village who are not closely related to her/him, and who receives some direct remuneration—usually in kind—for this. Moreover, each healer had to be confirmed as such by at least five independent patients from the village community.

³ Infant mortality rate of Siaya District: 130/1000 (GOK, 1992). In sub-Saharan Africa, 15.6% of all children die before they are 5 years old (US Bureau of the Census, 1999). The percentage for western Kenya is likely to be much higher, due to the high prevalence of HIV/AIDS in this area and it is safe to assume that at least every fifth child that is born in the study area dies before it is 5-years old.

Parkin, 1972). Women's washing, massaging, steaming, feeding of small children, the observation of small signs, and the debates about illness and treatment, in which all women in a homestead participate, are Luo medicine. Medical knowledge is women's collective and communal knowledge for the creation and maintenance of children's life and well-being. Hence, it is ordinary women, not exotic 'traditional healers', to whom we ought to turn in order to learn about Luo plant medicine.

4. Methods

To explore the plant remedies among rural Luo people, we selected mothers of different ages as key informants. Knowledge and use of plant medicine is mainly a female domain, which is why we decided not to interview fathers in this survey; motherhood plays a role in the acquisition of medical knowledge, hence the choice of mothers rather than women in general. Seven women volunteered to share their knowledge of medicines with us. Their ages ranged between 17 and approximately 65 years (mean 36 years); the youngest had only given birth to one child, while the oldest was a grandmother with over ten grandchildren. Except for one, who had lived in Nairobi for several years, all mothers were born and had always lived in the rural areas of northern Luoland; none of them had a reputation in the village for being a healer.

With each of these women, several extensive individual interviews were conducted in *Dholuo* to elicit information on plant remedies and their use. The interviews were conducted as open conversations, discussing back and forth between illnesses and treatments, but without probing for particular treatments. Subsequently, all plant specimens were collected together with the women on walks through the bush. The women, in the locations where they usually collected their medicines, identified all specimens, and they collected the plant parts used in Geissler's presence. Most plants were pressed and Harris subsequently identified them. Voucher specimens are deposited in FHO.

Interviews with the women made use of the knowledge of indigenous illness concepts that had been acquired during earlier studies with children and adults in the same villages (e.g. Geissler, 1998, 2000; Geissler et al., 2000; Prince et al., 2001) as well as other Luo ethnography (e.g. Evans-Pritchard, 1950; Whisson, 1964; Parkin, 1978; Abe, 1981; Cohen and Odhiambo, 1989). This prior knowledge of local practices and

modes of discussing illness and treatment was a necessary prerequisite in order to engage in meaningful and informative dialogues about plant remedies and their use with the mothers. In the course of the field walks, this knowledge was further discussed with the mothers. Brief descriptions of some important 'Luo' illnesses, as they emerged from these conversations, are given below to facilitate understanding of the treatments.

5. Plant medicine

5.1. Plant remedies used by the mothers

In total, the seven women identified 91 Luo plant remedies that they said they had used to treat either themselves or family members. There was considerable variation in the extent of the women's individual knowledge, ranging between 23 and 70 remedies (mean 46 remedies). The older women, who already had grandchildren, seemed more assertive about their knowledge, but due to the small sample size, no significant association with age or with number of children could be shown. Instead, the different knowledge seems to stem from individual differences between the women; as one of the particularly knowledgeable put it: 'some girls just like learning about medicines'. The agreement between the women was good in that 75 Luo remedies (82%) were known by at least two, and 43 (47%) were known by at least four of the seven women.

Of these plant remedies, 74% grew in the dry bush within 1 km of the lake, whilst 26% grew farther away in the elevated hinterland. Most commonly, roots, leaves or bark of the plants were used in medicinal preparations, while seeds and fruits were used less frequently. The medicines were prepared from these plants either by boiling a decoction from them, pounding them and mixing them with either hot or cold water, pounding them without water, or just soaking them in a basin with water. Some medicines for more complex illnesses, e.g. *chira* or *wuoyo* (see below), were mixtures of different plant parts, but since some mothers were a little reluctant to divulge the precise mixtures of these family remedies, this information remained lacunary and it is not reported here. Most of the medicines were drunk (*madho*). Other common applications were: external (washing (*luoko*) or massaging (*rwayo*)), snuffing (*fito*), and steam bath (*fundo*). Steam bathing was very often combined with washing and drinking small amounts of the decoction. The latter combination treatment was common to a wide range of small children's diseases such as diarrhoea and skin conditions, which were related to the Luo illnesses, *yamo* and *wuoyo* (see below).

Most of the remedies (72%) could be used to treat stomach problems (for the different women ranging

⁴ *Iluwori gi yiende nyaluo mondo nyathi odongi maber*. (Geissler, 1998); *Chako chon loyo dhi ajuoga*. (Ocholla-Ayayo, 1976). Similarly, the Luganda say: 'one who wants to bring up a child needs medicine' (quoted in Iliffe 1997 [not in references]; 9).

between 50 and 83%), followed by skin conditions (13%, range 9–15%), cough and respiratory tract infections (10%, range 5–15%), wounds (7%, range 5–11%), toothache (4%, range 2–8%) and eye and ear infections (4%, range 2–6%). The distribution shows that plant remedies are mainly used for stomach problems, and not for fevers and headache, although the latter are common in the area due to the high prevalence of malaria. This confirms findings on medicine use among school children that showed plant medicine was rarely used for fever and headache, but for stomach problems, wounds and traditional illnesses (Geissler et al., 2000). This could suggest that the availability and immediate effect of pharmaceuticals on fever and headache has replaced to some extent plant remedies for these ailments.

Many of the remedies treated traditional Luo illnesses (which often overlap with skin and stomach problems). Thus 36% of all medicines (range 22–41%) treated *yamo*, 19% (range 12–31%) were used for *wuoyo*, 6% (range 4–7%) for *kut wich* (headworms), 5% (range 1–8%) for *sihoho* (evil eye), 5% (range 2–7%) for *ang'iew*, and 16% (range 1–23%) for *chira*. Three women in particular held expanded knowledge of treatments for, respectively, *chira* (12 remedies), *yamo* (18 remedies) and *wuoyo* (23 remedies) (see below).

Among the 91 plant remedies collected by the women, 74 could be identified as 69 different species; in 13 cases, the species could not be identified, in two cases, only the family was identified, and in two cases, the collected material did not allow identification of the family. In five cases, different women gave the same Luo names to two different botanical species, and, vice versa, five species were called by different names by different women. The fact that some species were named differently by different women, and, in other cases, the same *Dholuo* names designated different species, indicates flexibility in the women's knowledge of plant medicine. This may be due to the seven women having all originally come from different parts of Luoland, and thus bringing together medical knowledge from different groups. While the tradition of one area calls a certain plant with one name, another clan may prefer another name (*Dholuo* vocabulary itself varies between different parts of Luoland). A woman who grew up in one area and learned one name, may either continue to use it, and pass it on to her daughter-in-laws and granddaughters, or she may adopt the name used in her new place of residence. Moreover, often women move between different ecological zones with a slightly different flora. If a woman cannot find a specific herb in her new area of residence, she might decide to use a name that she has learned as the remedy for a certain illness, for a different plant that treats the same illness. In this way, the exogamous movement of women has two complementary effects: on one hand it unifies and homogenises Luo medical knowledge by facilitating exchanges between

women from different areas; on the other hand, it allows for some changes, integration of new elements and re-negotiation of medical tradition. The negotiation of medicinal knowledge between women of different generations was described by the interviewed mothers, when they explained how they only 'found' a certain illness or medicine, when they got married and moved to their new home.

5.2. Comparison of mothers and children's knowledge

In an earlier study, we assessed schoolchildren's knowledge of medicines in the same village, unfortunately without identifying the plants in the field or collecting and identifying specimens (Prince et al., 2001). The study found that the 86 study children aged 12–15 years (median age 13 years), already knew a total of 80 plant remedies. The names mentioned by the children overlap widely with those given by the mothers; of the 91 remedies mentioned by the mothers, only 17 were not mentioned by the children (and these were relatively rare medicines, as only two of these 17 were named by four or more mothers). Thus, 74 of the mothers' 91 plant remedies were already known by the children. Of the six remedies that were mentioned by the children and not by the mothers, several names sounded either doubtful, possibly invented by the children in order to appear more knowledgeable, or not like *Dholuo* terms (which may be due to many children's temporary stays with relatives in multiethnic settlements in the city). No follow-up on this data could be collected.

While the total number of remedies mentioned by mothers and children was similar, the number of remedies known by individuals was lower among the children than among the mothers. The children knew on average 14 remedies (range 4–22) each, and of the 80 total remedies, only 25 were known to more than 10% of children. The comparison with the similar figures for the mothers given above shows that, individually, children are still learning about medicines, although they collectively have acquired most of their mothers' knowledge already. As the children together already held most of the adult knowledge, they probably continue learning about plant remedies from age mates as well as from their older relatives. This data on mothers' and children's knowledges of plant medicine underlines the point raised above that Luo traditional medical knowledge is communally held and exchanged and learned in the daily practice of the family, in which children actively take part.

Another difference between this study on mothers and the earlier data on children is noteworthy. The children listed in addition to the above mentioned plant remedies nine common fruit and vegetables, which the mothers did not categorise as medicine, and 25 non-plant home remedies, which included substances such as wood ash,

soda ash, ash from feathers, salt, milk, cow dung, monkey droppings and washing powder (these remedies were not counted in the above presentation of *herbal* medicines). Children did not distinguish as clearly as mothers between Luo medicine (*yath nyaluo*) and other non-biomedical remedies, although they had a clear idea of the distinctiveness of biomedical treatments (see Prince et al., 2001). They seemed to distinguish less between ‘Luo’ and ‘western’, than between ‘home’ and ‘hospital’ remedies.

6. Comments on specific Luo illness concepts

6.1. *Yamo*: the potential illness

Yamo (as an illness-principle, sing. only; if used to designate a symptom, also pl. *yembe*) is the most common term that Luo mothers use when they discuss illness. Thirty five of the remedies given by the mothers were said to treat, among other illnesses, *yamo*. In many cases, this very broad category was further qualified as e.g. in ‘the *yamo* of the belly’ (*yamo mar ich*), ‘the *yamo*, which swells’ (*yamo mokuodo*), ‘the very small *yamo* (pimples or rash)’ (*yamo matindotindo*) or ‘*yamo* of the teeth’ (*yamo mar lak*), and it could thus be categorised as, respectively, stomach ache and/or diarrhoea, swelling of the abdomen, skin rashes and oral infection.

The term *yamo* is used very commonly in talking about illnesses, both to designate a specific symptom as in ‘she has many small boils’ (*en gi yembe matindotindo*), as the name of an illness: ‘he has *yamo*’ (*en gi yamo*), or to identify the cause of an illness: ‘*yamo* has brought him diarrhoea’ (*yamo okelone diep*). Often it is not even mentioned, but upon probing it is suggested as the real illness behind a symptom like stomach ache (*ich kach*), diarrhoeal illness among infants (*wuoyo*, *mbaha*, *oria-nyacha*, *koke*, see below) and other illnesses of childhood (*ang’iew*, see below). *Yamo* covers a wide and somewhat diffuse field, and at times, the mothers disagreed on what should or should not be called *yamo*, and whether or not a certain illness is a kind of *yamo*.

Apart from the occasions where *yamo* clearly means boils, rash or pimples, *yamo* is best understood as an illness-principle, which resides—either from birth or in some cases through malevolent human practices (*yamo en hono*)—in the body. Occasionally, it emerges from there. It can be provoked to ‘come out’ and cause illness by outside influences. According to the mothers, in the case of the infant illness *koke*, this influence is e.g. a bird passing over the child left to sleep outside around sunset. A procession of spirits towards the lake (*nyawawa*) brings about the illnesses *nundu* or *ang’iew* (the former is sometimes translated as ‘smallpox’, while the other one is usually (but probably often misleadingly)

translated as ‘measles’⁵). However, *yamo* most frequently emerges by itself, without any discernible cause. Among adults, it takes often the form of a boil, which is said to ‘ripen’ (*ochiek*), until it can be cut open and the pus it contains can be squeezed out. Once these illnesses have appeared, be it as a swelling, a rash, a boil or as stomach ache, it is important that the *yamo* does come out of the body as rashes, sweat or pus, and many of the plant remedies are employed for precisely this purpose. In some cases, especially if evil practices have brought the *yamo*, it can be transferred to another person (*loko yamo*). To contain it in the body at this stage would be dangerous and potentially fatal. If it is kept inside the sick body, either because it remains untreated or because the symptoms are suppressed by the injection of biomedical drugs, it can cause constipation (*ich mo-kuot*), or make the abdomen swell (*hima*) and eventually, it will kill.

In some situations, there may, therefore, be a conflict between herbal and biomedical understandings of treatment. For example, infant diarrhoea, if understood as *yamo*, should be treated with plant remedies that enhance the diarrhoea to ‘bring out’ the *yamo*. *Yamo* is thus one of the reasons why infants are not taken to hospital in the first place. As one mother put it: ‘Luo medicine makes the illness come out, injections push it back inside. If you inject, it moves through the body and you swell and may die.’ But even if the illness passes, the agent remains and demands constant awareness and care, lest it strike again. So treatment, as illness, never ceases. All but one of the interviewed women agreed with the common Luo saying that ‘a (young) child ought to be ill regularly’ (*nyathi onego otuore*) lest it would die, once the illness (i.e. *yamo*) finally ‘comes out’.

Yamo is very common and every woman knows some plants to treat its various appearances, but since it can be a persistent and eventually life-threatening illness in small children, there are some women who are more knowledgeable. One of the study mothers, in spite of not being considered a healer by anybody, knew 20 different remedies that treated *yamo*, while the others only mentioned four to eight *yamo* medicines.

The idea that dormant illness permanently resides in the body is not confined to *yamo*, but is also expressed in many people’s perception of intestinal worms, which

⁵ *Nyawawa*: Occasionally, in the middle of the night, often at full moon and especially during the dry, hot periods, one can hear the sound of pots and cans that are rattled against each other, traversing the landscape like a wave, which originates from the hills and moves towards the lake. These noises are made by people in their homes in order to drive away the *nyawawa* spirits, the dead people of a long-gone clan, which can bring *ang’iew* (measles?) or *nundu* (smallpox?) to the children. People start making noise once they hear the noise of their neighbours, in this way ‘chasing’ both the noise and the spirits down the hills.

are believed to belong to the body and to fulfil some positive function there, apart from being a potential cause of illness (Geissler, 1998; for the more general idea of an agent of illness and health residing in the body in East African medical culture, see Green, 2000). The body is a container full of power and potential, but also contains unknown weaknesses and dangers; they can always emerge, they can kill, but they can never be defeated, because they are part of bodily vitality. There is no victory over disease in this medical practice, only balance, a truce, or at times the possibility to move an ailment on to another person. This is important to the construction of efficacy within Luo medical practice. While plant remedies are expected to alleviate suffering and restore the body, they are not expected to solve the problem once and for all, to eradicate the agent of illness, as is the case in Western medicine, e.g. with regard to antibiotics or antimalarials. This difference in the understanding of treatment was identified by Parkin (1995) as a fundamental dichotomy between the aim of ‘eradication’ versus ‘dispersal’ of disease in different medical cultures.

Illnesses are thus present in the healthy body, and emerge by themselves or upon outside provocation, mostly activities of the person herself or personal agents. These forces reside in the abdomen (*ich*), which is the centre of the living body in Luo conceptions. Infants are treated almost constantly to prevent illness, or, to be precise, to make it emerge from the body, to keep *yamo* and other inner forces at bay, and to maintain a balance in the child’s body. Children are frequently ill, but they are far more often treated in order to keep their bodies in balance. Treatment is thus not primarily an answer to illness, but a way to tackle the omnipresence of threat to the vulnerable body. One mother said: ‘it is inside. You never know. You have to look all the time as a mother, and try medicine, also when she is not very ill’. The distinction between preventive and curative medicine, which is important to Western medicine is thus blurred in continuous Luo medical and caring practice.

6.2. Infant’s illnesses

Luo mothers distinguish a variety of kinds of diarrhoea (*diep*) by colour (e.g. yellow (*maratong*), green (*maralum*)), consistency (e.g. watery (*diep mar pi*), presence of pieces of food (*mar chiemo*)) or of blood (*diep mar remo* or *ndira*). Their classification of stools, as well as their detailed observation of children’s skin and body movement, would deserve further ethnographic study. Here, only a few common terms for infants’ illnesses shall be mentioned, as they make up the bulk of illnesses that are treated with plant medicines.

The most common infant’s illnesses are *wuoyo* and *orianyacha* (and *mbaha* and *koke*, which some women described as related illnesses). These are diarrhoeal

illnesses that affect children from around the age of 4 months—‘once they start sitting’—and during the first years of their lives. They were by several mothers linked to *yamo*. Accordingly, they are treated by making the illness emerge with herbal concoctions that induce diarrhoea, or with steam baths that make the skin permeable and/or produce rashes. These treatments take usually several days (for steam baths 3 days for girls and 4 days for boys), although sometimes a single steam bath is given to prevent *wuoyo*. This treatment should not be mixed with biomedical treatment, since the two modes of treatment contradict each other: one makes the illness come out, the other contains it in the body. Some mothers explained that these illnesses are progressive stages of one illness, while others seemed to regard some of them as distinct illnesses, some of which were not caused by *yamo*. All mothers agreed that a child could die from these illnesses if they were left untreated, but they were judged as slow illnesses, which were part of all infants’ lives. All children have *wuoyo* and *orianyacha*.

Some of the women linked *wuoyo*—high fever and diarrhoea and malaria, suggesting that ‘in hospital language, *wuoyo* is malaria’ (*gi dho osipital wuoyo en malaria*). However, rather than ‘translating’ one term into the other, it seemed to us as if *wuoyo* as well as ‘malaria’—which is the standard presumptive diagnosis for sick infants in the local dispensary, which has no diagnostic laboratory facilities are employed in different contexts for the broad range of illnesses that affect infants.

The other common infant illness that is related to *yamo* is *ang’iew*. This term is usually translated as ‘measles’ by mothers who speak some English as well as by local medical staff. The symptoms associated with *ang’iew* are an intense rash all over the body, sometimes including the child’s mouth, and high temperature. It thus resembles in some ways the biomedical presentation of measles; however, *ang’iew* is a very common illness that can affect the same child many times and it occurs much more often than one would expect measles to occur in this population, hence the translation is probably misleading. Since *ang’iew* is related to *yamo*, once it has been diagnosed, it should come out as rashes and diarrhoea, and herbal remedies are used for this effect. Again, there is a potential conflict between the contradictory effects of biomedical and herbal remedies, which can prevent mothers from seeking biomedical assistance for their sick child.

There are women within the families, who know more about one or some of these illnesses, although they are not considered specialists or healers. One study mother knew 23 different remedies that were ingredients for different treatments of *wuoyo*, whilst the others only knew one to 12; (she told us that occasionally she was

consulted by kinswomen from neighbouring homesteads, but said that she was not a healer).

These illnesses differed from the more acute condition which is commonly referred to a ‘the worm follows the child’ (*njoka luwo nyathi*) or ‘the child is stretching’ (*nyathi otwenyo*), which causes spasms or fits of the extremities and head (some studies relate these to serious malaria in infants, e.g. Mwenesi, 1995). These symptoms are said to be caused by a worm that ‘moves up’ in the child, blocks its respiration, and ‘strangles’ it (Geissler, 1998). Some of the women related this state to another illness, *okul bat*, which also makes the child’s body stiff. The child can die from these illnesses. They are prevented by massages (*rwayo*) with plant remedies and small chains (*thiwini*) that are tied on the infant’s wrists and neck.

6.3. Worms (*njoka*, plural *njokla*)

Worms are another cause of children’s abdominal problems, and stomach aches and pains (*ich kach*, *ich maremo*) are commonly attributed to them (see extensive treatment in Geissler, 1998). Symptoms attributed to worms are taken lightly, as natural parts of a body’s responses to food and other outside influences. If the worms cause complaints, they have to be appeased by plant medicine. Thus, the plant remedies that the mother’s described to ‘treat worms’ cannot be assumed to be anthelmintics, but might well just ‘appease’ the worms.

Another role in which worm-like entities appear in Luo ideas about small children’s illness are ‘headworms’ (*kut wich*), which are described as maggots of sorts (*kudni*), which reside in the heads of all children, and which could induce spasms and fits related to the moon’s phases. They can eventually lead to the serious condition of *sambwa* (usually translated as ‘epilepsy’) or ‘madness’ (*tuo neko*), unless they were regularly appeased by frequent snuffing (*fito*) of crushed plant medicine.

6.4. Homa

The illness-term *homa*, derived from Kiswahili, is commonly used among Luo people. *Homa* can describe two groups of symptoms. The first is cough, sore throat, runny nose and cold; the second headache, body aches and fever. Although *homa* has been incorporated into *Dholuo* from Kiswahili, it differs from the coastal Swahili concept of *homa* as described for example by Beckerleg (1994), which corresponds to symptoms of malaria, but does not seem to include the respiratory symptoms of common cold and influenza. *Homa* forms a complex of symptoms that can be linked in various ways. Thus, the first author, suffering from allergic rhinitis, was told by several of the study mothers that he

should take care of the mosquitoes, and the rain, lest his *homa* would be come worse, and they recommended common antimalarials to prevent this.

6.5. ‘False teeth’ (*lak matwi*)

‘False teeth’ are another common problem of young Luo children. This illness is linked to diarrhoea and stomach problems, like those above. The cause is whitish ‘false teeth’ that emerge on the gums of infants. These ‘teeth’ either have to be prevented by rubbing plant medicine on the gums or extracted by an operation. An expert (*janak*), using the spoke of a bicycle wheel, usually does the extraction of ‘false teeth’ (*nago lak*) from the gums. This operation, though painful and risky, especially in an area with a high prevalence of HIV/AIDS, is performed on a large number of children in the study village. Since people are aware that ‘medical’ people disapprove of the operation, we could not obtain reliable statistics on it. The extraction of ‘false teeth’ has also been reported from northern Tanzania (Weiss, 1992) and eastern Uganda (Mogensen, 2000). As these authors argue, the extraction of these ‘teeth’ might be a more recent phenomenon related to social and economic changes. This may be supported by some of the study mothers’ statements that false teeth were becoming ‘more and more’, but then, the idea that health and well-being have deteriorated in Luoland is so widespread that any illness would be said to have worsened over the course of the past decades. In any case, a general concern with children’s teeth and the use of plant remedies to ensure their growth is probably older, as teeth are of great importance in Luo and other African conceptions of maturity and strength (e.g. Ocholla-Ayayo, 1976).

6.6. ‘Evil eye’ (*sihoho* or *juok wang’*)

Evil eye is a common cause of abdominal complaints, especially aches, among children and adults. It is brought by a woman who possesses the evil eye, who looks at the victim while he or she is eating. It is not clear, whether evil eye is intentional or not. Some mothers said that the woman could not help using it, but others accused certain women of affecting their children, indicating that personal animosity provoked these attacks. Often, *sihoho* strikes after some public event, where mothers breastfeed children in public, where people eat in the presence of non-kin or strangers, or when the mother breastfeeds a child on the path and meets somebody. If the person who brought the *sihoho* can be identified and is ready to admit it, the treatment can consist in sharing food with that person (called *hosu*). If this is not the case or if it fails, *sihoho* can be

treated with herbal remedies: the surface of the belly of the affected person is cut (*tako*) by a specialist healer (*jatako*) and the bad food affected by the evil eye is sucked out with a cow's horn. *Sihoho* is related to 'evil mouth' (*dhoho*), in which case illness or harm is produced by, for example, praising the beauty of a child or the smoothness of one's skin and causing this positive quality to deteriorate.

6.7. *Chira*

Chira is the most serious and most complicated of all Luo illness concepts, and both for Luo people and other Kenyans it is regarded as the 'Luo illness', especially because it has, in recent years, been linked to AIDS, which is very prevalent among the Luo of western Kenya. Again, this concept deserves a study in itself, but as some 20 of the remedies mentioned above also could be used as ingredients for *chira* medicines, we shall give a brief outline.

Chira can present itself in many ways but the most common symptoms are diarrhoea, especially with blood, wasting and weakness. *Chira* causes death, unless it is successfully treated. It is caused by the breaking of traditional rules, (*kwer*) of conduct, usually linked to relations of seniority between kinsfolk or to sexuality, which govern social behaviour, reproductive and agricultural activities, house building and creative crafts among the Luo. Rule violations (*ketho kwer*) lead to *chira* (for a detailed treatment see Parkin, 1978; Abe, 1981). It befalls children as well as sexually active adults, but old people do not seem to be affected, probably because they are most senior in the domestic hierarchy, and past their dangerous reproductive age.

Chira can be treated in various ways, which commonly involve the use of a special remedy, *manyasi*. *Manyasi* are various mixtures of plant medicines, which are surrounded by secrecy and only known to the person who prepares it. In contrast to ordinary illnesses and treatments, *chira* is not usually discussed openly, and treatment is not sought in a public process but with a person who is known to possess medicine for it. 'Small' *chira* (*chira matin*) may be attempted to be treated in the family, with a common medicine or a family remedy; for more serious persistent *chira*, older female family members, are consulted, and for 'big' *chira* (*chira maduong*) a more well-known healer may be consulted. *Chira* is thus one of the instances, like madness or epilepsy, where the help of specialists may be required (see the description of a healer of *chira* in Prince and Geissler, 2001). Among our study mothers, one knew 12 herbs that can be used for *manyasi* for the treatment of *chira*, while the others only knew one to four.

7. Comparison between laypeople's and healer's knowledge

Johns et al. (1990) conducted an extensive ethnobotanical survey with 45 traditional healers in northern Luoland and although our material is less broad, it is interesting to compare their findings with those presented above. This survey was conducted in Siaya District, which recently was split into Siaya and Bondo and thus included our study area, but the healers consulted all lived 10–40 km from our study area (average approximately 22 km) and, more importantly, in different ecological settings. Since terminological variation in general is great between different Luo areas, and as the distribution of plants in the different settings can be expected to differ, it is astonishing how well the healers' and the mothers' plant knowledge is in agreement with each other. Of the 49 medicinal plants, on which three or more healers in the healer study agreed, only 12 were not mentioned by the seven women in this study. Of these 12, seven were used to treat common illnesses like stomach or tooth ache, two were used to treat *chira*, one was a labour-inducing remedy used by midwives, one was a poison that was said to cause abortion, and one was not a local medicinal plant, but sold by healers in markets.

It is interesting to note the variations between the healers' and the mothers' knowledge. Thus, some common Luo names are given to different species (for example, *ongono* was identified as, respectively, *Caparis tomentosa* Lam. or *C. fascicularis* DC. for mothers and healers, *ochok* as *Solanum incanum* L. or *S. sessilistellatum* Bitter. Some names, like *akech* (meaning bitter) were applied to more than ten different species by different informants. Some species were called with different Luo names in the two areas (e.g. *Leonotis nepetifolia* (L.) Ait. f. was, respectively, *nyunyudhi* or *osuno-osuno madongo*). These variations may partly be due to ecological variation and underline the element of openness and variability that is inherent to Luo pharmacopoeia. This variation between plant names, and between names and the species they refer to is also evident from the comparison of our data with Kokwaro and Johns's 'Biological Dictionary' (see Table 1, Comments) (and, in fact, from the data collected in that dictionary itself). These variations require that botanical dictionaries like the standard works on Luo flora and East African medicinal plants by Kokwaro (1972, 1993), Kokwaro and Johns, (1998) are used with the support of an identification key.

A main point raised by the article by Johns et al. (1990) on herbal remedies is the relative inconsistency of the information given by the healers. Of 330 species that they had collectively mentioned, only 49 species had been mentioned by three or more healers. The wide geographical spread of the informants over the relatively

Table 1
Luo medicinal plants reported by the seven mothers, together with their reported uses and preparation, parts used and Luo and scientific names

Luo common name	Use	Preparation	Part	Species	Family	Notes
<i>Atipa</i>	'Chira' 'False teeth'	Pounded, mixed with water, drunk	LV	<i>Asystasia schimperi</i> T. Anders.	Acanthaceae	Common name associated with <i>Asystasia mysorensis</i> by Kokwaro and Johns (1998)
<i>Akudho</i>	Scabies 'Wuoyo'	Decoction drunk washing with infusion	RT LV	<i>Crabbea velutina</i> S. Moore	Acanthaceae	Common name associated with <i>Barleria grandicalyx</i> or <i>Dovyalis macrocalyx</i> or <i>Maytenus heteropylla</i> by Kokwaro and Johns (1998)
<i>Obugo nya-duol</i>	Syphilis	Pounded, mixed with water, applied to affected parts	LV	<i>Crossandra massaica</i> Mildbr.	Acanthaceae	Not mentioned in Kokwaro and Johns (1998)
<i>Orianyacha</i>	'Orianyacha' Bleeding wounds stomach ache	Decoction drunk pounded, applied to wound infusion drunk	RT LV RT	<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb and illness are homonymous; possibly there is another common name. The common name <i>Ayucha</i> , which Kokwaro and Johns (1998) list, refers, according to our informants, to another species
<i>Ododo</i>	'Lep', mouth infection	Pounded, rubbed on tongue	WP	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Common name associated with <i>Amaranthus hybridus</i> by Kokwaro and Johns (1998)
<i>Kuogo</i>	Stomach ache 'Yamo', 'Wuoyo'	Decoction drunk steambath, washing, decoction drunk	BK,RT BK,RT	<i>Lannea schweinfurthii</i> (Engl.) Engl.	Anacardiaceae	See Kokwaro and Johns (1998)
<i>Osangala</i>	'Yamo', stomach ache	Decoction drunk (mixing)	RT	<i>Rhus natalensis</i> Bernh. ex Krauss	Anacardiaceae	Common name <i>sangala</i> according to Kokwaro and Johns (1998)
<i>Ochuoga</i>	Diarrhoea 'Ang'iew', measles	Decoction drunk steambath, washing, decoction drunk (mixing)	RT RT	<i>Carissa edulis</i> (Forssk.) Vahl.	Apocynaceae	See Kokwaro and Johns (1998)
<i>Chamama</i>	'Headworms' Congested nose in child	Crushed, mixed with water, snuffed	LV	<i>Thevetia peruwiana</i> (Pers.) Lam.	Apocynaceae	Introduced. Common name <i>Thebesia</i> according to Kokwaro and Johns (1998)
<i>Obwo</i>	'Homa', 'headworms', congested nose	Dried, pounded, snuffed	LV	<i>Gomphocarpus physocarpus</i> E. Mey.	Asclepidaceae	Common name associated with <i>Gomphocarpus semilunatus</i> by Kokwaro and Johns (1998)
<i>Achak</i>	'Chira'	Pounded, mixed with water, drunk	LV	<i>Pentarrhinum insipidum</i> E. Mey.	Asclepidaceae	Common name associated with nine other species, but not this one by Kokwaro and Johns (1998)
<i>Ogaka Selele</i>	'Yamo', swelling, boils 'Wouyo', diarrhoea	Decoction drunk Infusion drunk (mixing)	LV LV	<i>Aloe vera</i> (L.) Burm. –	Asphodelaceae Asteraceae	Introduced. See Kokwaro and Johns (1998) Insufficient material. Common name associated with <i>Ipomoea cairica</i> by Kokwaro and Johns (1998)
<i>Oluoro chieng</i>	'Orianyacha' Stomach ache	Steambath, washing, decoction drunk (mixing) decoction drunk	LV RT,LV	<i>Ageratum conyzoides</i> L.	Asteraceae	Introduced. See Kokwaro and Johns (1998)
<i>Omunya</i>	Stomach ache	Infusion drunk	LV	<i>Eupatorium</i> sp.	Asteraceae	Not mentioned in Kokwaro and Johns (1998)
<i>Nyabung odide</i>	'Yamo', stomach ache, 'wuoyo'	Decoction drunk	RT	<i>Microglossa</i> sp.	Asteraceae	Common name associated with <i>Microglossa pyrifolia</i> (Lam.) O. Kuntze by Kokwaro and Johns (1998)
<i>Aticho</i>	Scabies, skin infection	Pounded, mixed with water, washing	LV	<i>Psiadia punctulata</i> (DC.) Vatke	Asteraceae	Not mentioned by Kokwaro and Johns (1998); common name <i>Atilili</i> associated with <i>Psiadia arabica</i> by Kokwaro and Johns (1998)
<i>Akech</i>	Stomach ache	Infusion drunk	WP, LV	<i>Schkuhria pinnata</i> (Lam.) Thell.	Asteraceae	Introduced. Common name is also associated with <i>Chamaechrista hildebrandtii</i> and <i>Gutenbergia cordifolia</i> or <i>Justicia betonica</i> or <i>Vernonia glabra</i> by Kokwaro and Johns (1998)
<i>Achak</i>	Constipation, stomach ache, 'yamo'	Decoction drunk	RT	<i>Sonchus</i> sp.	Asteraceae	Common name associated with <i>Sonchus schweinfurthii</i> and eight other species by Kokwaro and Johns (1998)

Table 1 (Continued)

Luo common name	Use	Preparation	Part	Species	Family	Notes
<i>Anyach</i>	Bleeding wounds	Pounded, applied to wound	LV, WP	<i>Tagetes minuta</i> L.	Asteraceae	Introduced. See Kokwaro and Johns (1998)
<i>Olulusia</i>	'Wuoyo', 'Mbaha', Diarrhoea, 'sihoho' Stomach ache	Decoction drunk decoction drunk infusion drunk	RT, LV RT RB	<i>Vernonia amygdalina</i> Del.	Asteraceae	See Kokwaro and Johns (1998)
<i>Yago</i>	'Yamo', stomach ache	Decoction drunk	BK	<i>Kigelia africana</i> (Lam.) Benth.	Bignoniaceae	See Kokwaro and Johns (1998)
<i>Siala</i>	Stomach ache	Decoction drunk	RT	<i>Markhamia lutea</i> (Benth.) K. Schum.	Bignoniaceae	See Kokwaro and Johns (1998)
<i>Ong'ono</i>	Worms, intestinal problems Diarrhoea, 'false teeth'	Decoction drunk pounded, rubbed on gums	RT LV	<i>Capparis fascicularis</i> DC.	Capparidaceae	See Kokwaro and Johns, 1998. Common name also associated with <i>C erythrocarpus</i> or <i>Sclerocarya birrea</i> or <i>Scutia myrtina</i> by Kokwaro and Johns (1998)
<i>Ayucha</i>	'Yamo', 'wuoyo', yellowish infants Stomach ache	Decoction drunk decoction drunk	RT RT	<i>Capparis</i> sp.	Capparidaceae	Common name associated with <i>Achyranthes aspera</i> by Kokwaro and Johns (1998)
<i>Akeyo</i>	Diarrhoea, 'Orianyacha' 'Si-hoho', stomach ache Leprosy	Pounded, rubbed on anus Infusion drunk decoction drunk	WP RT LV	<i>Gyandropsis gynandra</i> (L.) Briq.	Capparidaceae	See Kokwaro and Johns (1998)
<i>Aringo</i>	Stomach ache, diarrhoea	Decoction drunk, infusion drunk	BK, LV, RT	<i>Maerua calophylla</i> Gilg.	Capparidaceae	Common name <i>Bware</i> according to Kokwaro and Johns (1998)
<i>Undaro</i>	Stomach ache	Decoction drunk	RT	<i>Maytenus senegalensis</i> (Lam.) Exell	Celastraceae	Common names <i>Mathari</i> , <i>Nderma</i> , <i>Nyamage</i> , <i>Nyandema</i> according to Kokwaro and Johns (1998)
<i>Keyo</i>	Stomach ache	Decoction drunk	BK, RT	<i>Combretum molle</i> G.Don. ex R.Br.	Combretaceae	See Kokwaro and Johns (1998)
<i>Api</i>	Sore throat 'Wuoyo', 'ang'iew', measles	Chewed unprepared pounded, mixed with water, washing (mixing)	LV	–	Commelinaceae	Insufficient material. Common name not mentioned in Kokwaro and Johns (1998)
<i>Orianyacha</i>	Diarrhoea bleeding wound	Decoction drunk pounded, applied to wound	RT LV	<i>Evolvulus alsinoides</i> (L.) L.	Convolvulaceae	See <i>Achyranthes aspera</i>
<i>Ongata</i>	'Yamo', stomach ache	Decoction drunk	RT	<i>Ipomoea kituensis</i> Vatke.	Convolvulaceae	Common name also <i>Obinjuacc</i> to Kokwaro and Johns (1998)
<i>Nyanwyang liech</i>	'Yamo'. Stomach ache	Decoction drunk	BK	<i>Ipomoea</i> sp.	Convolvulaceae	Common name not mentioned in Kokwaro and Johns (1998)
<i>Oboke</i>	Ringworm 'wuoyo', diarrhoea	Applied to affected skin decoction drunk	SP RT	<i>Ipomoea spathulala</i> Hall. F.	Convolvulaceae	Not mentioned as separate species, but common name is according to Kokwaro and Johns (1998) 'general term for a leaf'
<i>Nyamutu kuru</i>	Diarrhoea	Crushed, mixed with water, drunk	WP	<i>Coccinea grandis</i> (L.) Voigt.	Cucurbitaceae	Common name <i>Nyathund-guok</i> according to Kokwaro and Johns (1998)
<i>Ajifi</i>	'Ang'iew', measles	Pounded, mixed with water, washing, drunk	LV	<i>Zehneria scabra</i> (L.f.) Sonder	Cucurbitaceae	Not mentioned by Kokwaro and Johns (1998)
<i>Amina amina</i>	'Chira' bloody diarrhoea	Decoction drunk, decoction drunk	BK, RT, RT	<i>Euclea racemosa</i> Murr. ssp. <i>schimperi</i> (A.DC) F.White	Ebenaceae	Not mentioned in Kokwaro and Johns (1998)
<i>Akado</i>	'Yamo', stomach ache, constipation	Decoction drunk (mixing)	RT	<i>Euclea racemosa</i> Murr. ssp. <i>schimperi</i> (A.DC) White	Ebenaceae	Common name associated with <i>E. divinorum</i> , <i>Boscia salicifolia</i> , and <i>Maerua triphylla</i> by Kokwaro and Johns (1998)
<i>Adhiambo lera</i>	'Chira'	Decoction drunk	LV	<i>Erythrococca bongensis</i> Pax.	Euphorbiaceae	Common name <i>Adieremo</i> , <i>Hariadho</i> , or <i>Nyadiermo</i> according to Kokwaro and Johns (1998)
<i>Hariadho</i>	Stomach ache 'Chira'	Infusion drunk, decoction drunk	RT, LV	<i>Erythrococca bongensis</i> Pax.	Euphorbiaceae	See Kokwaro and Johns (1998)

Table 1 (Continued)

Luo common name	Use	Preparation	Part	Species	Family	Notes
<i>Ombulu</i>	Cough, cold, stomach ache	Chewed unprepared, decoction drunk	LV,RT LV,RT	<i>Abrus precatorius</i> L.	Fabaceae	See Kokwaro and Johns (1998)
<i>Osiri</i>	Diarrhoea, stomach ache 'Headworms'	Decoction drunk, pounded, snuffed	RT, SE	<i>Acacia brevispica</i> Harms	Fabaceae	See Kokwaro and Johns (1998)
<i>Obedi</i>	'Wuoyo', 'Mbaha', Diarrhoea, stomach ache 'Yamo', swelling	Steambath, washing, decoction drunk, decoction drunk, washing with decoction	BK	<i>Acacia hockii</i> de Wild.	Fabaceae	Common name <i>Arumbe</i> or <i>Oriang</i> ' according to Kokwaro and Johns (1998)
<i>Omuya</i>	Eye infection 'Wuoyo', 'Orianyacha'	Steam bath, washing with decoction, steam bath, washing, decoction drunk	BK, RT	<i>Acacia</i> sp.	Fabaceae	Common name not mentioned by Kokwaro and Johns (1998)
<i>Alii</i>	'Yamo', diarrhoea, stomach ache, 'Chira'	Decoction drunk, pounded, mixed with water, drunk (mixing)	BK, RT, LV	<i>Acacia</i> sp.	Fabaceae	Common name associated with <i>Acacia seyal</i> Del. var. <i>fistula</i> (Schweinf.) Oliv. by Kokwaro and Johns (1998)
<i>Alaktar</i>	'Yamo', 'wuoyo', stomach ache	Decoction drunk	BK	<i>Acacia</i> sp.	Fabaceae	Common name associated with <i>Acacia lahai</i> Benth. by Kokwaro and Johns (1998)
<i>Ober</i>	'Yamo', 'Wuoyo', diarrhoea, stomach ache	Steambath, washing, decoction drunk, decoction drunk	BK	<i>Albizia coriaria</i> Welw. ex Oliv.	Fabaceae	See Kokwaro and Johns (1998)
<i>Okeke</i>	Stomach ache, worms, 'yamo'	Infusion drunk	LV,RT	<i>Cassia nigricans</i> Vahl.	Fabaceae	Not mentioned by Kokwaro and Johns (1998)
<i>Otamo liech</i>	Diarrhoea, sunken fontanelle, 'Yamo', swelling	Dried, put in porridge, pounded, applied to head, decoction drunk, washing	LV, LV, RT	<i>Ormocarpum trachycarpum</i> (Taub.) Harms	Fabaceae	Common name <i>Det</i> according to Kokwaro and Johns (1998)
<i>Ng'oeche</i> <i>ng'oeche</i>	Diarrhoea, relax infant's body	Pounded, mixed with vaseline, massaged	LV	<i>Senna bicapsularis</i> (L.) Roxb.	Fabaceae	Introduced. Common name <i>Ang'or-Angor</i> according to Kokwaro and Johns (1998)
<i>Owino</i>	Diarrhoea, 'yamo', 'wuoyo', 'Chira'	Steam bath, washing, decoction drunk (mixing), pounded, mixed with water, applied externally	LV,RT, LV	<i>Senna dibymobotyra</i> (Fresen) H.S. Irwin and R.C. Barneby	Fabaceae	Common name also <i>Owinu</i> or <i>Obino</i> according to Kokwaro and Johns (1998)
<i>Oinglatiang</i>	'Orianyacha', stomach ache, diarrhoea	Decoction drunk, decoction drunk	LV, RT	<i>Senna occidentalis</i> (L.) Link	Fabaceae	Common name <i>Inglatiang</i> , <i>Nyayado</i> or <i>Ohinglatiang</i> ' according to Kokwaro and Johns (1998)
<i>Oyieko</i>	'Chira', 'headworms'	Pounded, mixed with water, drunk, pounded, snuffed	LV, LV	<i>Sesbania sesban</i> (L.) Merrill	Fabaceae	Common name also <i>Osaosao</i> , <i>Osawa</i> , <i>Osawosawo</i> or <i>Osepe</i> according to Kokwaro and Johns (1998)
<i>Chwa</i>	Stomach ache, ear ache	Decoction drunk, pounded, applied to ear	RT, LV	<i>Tamarindus indica</i> L.	Fabaceae	Introduced. See Kokwaro and Johns (1998)
<i>Rayuwe</i>	'Chira'	Decoction drunk (mixing)	RT	<i>Teramnus labialis</i> (L.f.) Spreng.	Fabaceae	Common name associated with <i>Indigofera spicata</i> , <i>Aspilia mossambicensis</i> and <i>pluriseta</i> by Kokwaro and Johns (1998) . Name means 'broom' hence used for broom-making bushes
<i>Nyunyodhi</i>	Diarrhoea, stomach ache, 'si-hoho', gonorrhoea, worms	Decoction drunk, washing, drinking decoction, decoction drunk	RT, LV, RT, LV	<i>Leonotis nepetifolia</i> (L.) Ait.f.	Lamiaceae	See Kokwaro and Johns (1998)
<i>Bwar</i>	Stomach ache, diarrhoea, 'Yamo', 'wuoyo'	Decoction drunk, steambath, washing, decoction drunk (mixing)	LV, WP	<i>Ocimum gratissimum</i> L.	Lamiaceae	Common name associated with <i>O. basilicum</i> ; other common names <i>Mieny</i> , <i>Mweny</i> ; <i>Okinga</i> according to Kokwaro and Johns (1998)
<i>Okita</i>	Stomach ache, 'Orianyacha' Ear ache	Infusion drunk, pounded, applied to ear	LV, LV	<i>Plectranthus</i> sp.	Lamiaceae	Common name associated with <i>P. barbatus</i> by Kokwaro and Johns (1998)

Table 1 (Continued)

Luo common name	Use	Preparation	Part	Species	Family	Notes
<i>Adhiambo lera</i>	'Chira'	Decoction drunk	LV	<i>Tinnea aethiopica</i> Kotschy ex Hook. f.	Lamiaceae	Common name Dindi, Ndwendwe, Nwendwe, Oland-rateng, Olando-marachar according to Kokwaro and Johns (1998)
<i>Olando</i>	'Chira'	Infusion drunk, washing, sewn into garments as protection	LV, ST	<i>Hibiscus meyeri</i> Harv.	Malvaceae	Common name associated with <i>Indigofera spicata</i> or <i>I. Arrecta</i> by Kokwaro and Johns (1998)
<i>Anyango nyaywora</i>	Diarrhoea, stomach ache, 'Chira', sunken fontanelle	Infusion drunk, infusion drunk, pounded, applied to infant's head	LV, LV, LV	<i>Sida rhombifolia</i> L.	Malvaceae	Not mentioned by Kokwaro and Johns (1998)
<i>Dwele</i>	Stomach ache, 'Ang'iew', measles	Decoction drunk, washing, decoction drunk	LV, RT, LV	<i>Melia azedarach</i> L.	Meliaceae	Introduced. See Kokwaro and Johns (1998)
<i>Arubaine</i>	Stomach ache, diarrhoea	Decoction drunk, infusion drunk	LV, RT, BK	<i>Melia azedarach</i> L.	Meliaceae	Introduced. Common name <i>Dwele</i> according to Kokwaro and Johns (1998)
<i>Otar</i>	'Homa', 'headworms', madness	Pounded, snuffed	LV	<i>Mollugo nudicaulis</i> Lam.	Molluginaceae	Common name <i>Otaro</i> , <i>Ataro</i> or <i>Orengo</i> according to Kokwaro and Johns (1998)
<i>Ng'o</i>	'Yamo', stomach ache	Decoction drunk	BK, RT	<i>Ficus</i> sp.	Moraceae	Common names <i>ng'ou</i> and <i>ng'owo</i> associated with <i>Ficus</i> species by Kokwaro and Johns (1998)
<i>Mapera</i>	Stomach ache, diarrhoea, 'Evil eye'	Infusion drunk	RT	<i>Psidium guajava</i> L.	Myrtaceae	Introduced. See Kokwaro and Johns (1998)
<i>Nyabut aduol</i>	Diarrhoea, 'ringworm'	Crushed, mixed with water, drunk	LV	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Not mentioned by Kokwaro and Johns (1998)
<i>Olemo</i>	Toothache, mouth infection, stomach ache	Decoction gurgled, decoction drunk	BK, RT	<i>Ximenia caffra</i> Sond. var. <i>caffra</i>	Olacaceae	Common name associated with <i>Ximenia americana</i> by Kokwaro and Johns (1998)
<i>Amina amina</i>	'Wuoyo'	Steambath, washing, decoction drunk	RT	<i>Jasminum fluminense</i> Vell.	Oleaceae	Common name <i>Kaminamina</i> according to Kokwaro and Johns (1998)
<i>Nyatiend gwen</i>	'Yamo', swellings, infected wounds	Pounded, heated, applied to affected parts	WP	<i>Oxygonum sinuatum</i> (Meisn.) Dammer	Polygonaceae	See Kokwaro and Johns (1998)
<i>Awayo</i>	Skin infection	Pounded, applied to affected parts	LV	<i>Oxygonum sinuatum</i> (Meisn.) Dammer	Polygonaceae	See Kokwaro and Johns (1998)
<i>Achieng' achieng'</i>	Sore throat	Decoction drunk	RT	<i>Tricalysia</i> sp.	Rubiaceae	Not mentioned in Kokwaro and Johns (1998)
<i>Ndim</i>	Cold, 'homa'	Chewed unprepared, decoction drunk	FR, LV	<i>Citrus</i> sp.	Rutaceae	Common name associated with <i>C. aurantium</i> by Kokwaro and Johns (1998)
<i>Roko</i>	Stomach ache, 'Yamo', '-wuoyo', Toothache	Decoction drunk, steambath, washing, decoction drunk (mixing), chewed unprepared	RT, RT, RT	<i>Zanthoxylum chalybeum</i> Engl.	Rutaceae	Common name also associated with <i>Z. usambarensis</i> and <i>Erythrina excelsa</i> by Kokwaro and Johns (1998)
<i>Pedo</i>	Diarrhoea, stomach ache, 'Yamo', diarrhoea	Infusion drunk, decoction drunk	RT, RT	<i>Harrisonia abyssinica</i> Oliv.	Simaroubaceae	See Kokwaro and Johns (1998)
<i>Nyatunglu</i>	Worms, stomach ache	Infusion drunk	WP	<i>Physalis angulata</i> L.	Solanaceae	Common name <i>Nyatonglo</i> or <i>Nyotonglo</i> according to Kokwaro and Johns (1998)
<i>Nyatunglu</i>	Stomach ache	Infusion drunk	LV, WP	<i>Physalis minima</i> L.	Solanaceae	Common name <i>Nyatonglo-ojuo</i> , <i>Nyakonglo-ojuo</i> , or <i>Otonglo</i> , according to Kokwaro and Johns (1998)
<i>Ochok</i>	Skin infection, ringworm, Desinfection of umbilical cord, wounds	Applied to skin, applied to umbilical cord, washing with infusion	FR, FR, LV	<i>Solanum incanum</i> L.	Solanaceae	See Kokwaro and Johns (1998) . The name also applies to other <i>Solanum</i> species

Table 1 (Continued)

Luo common name	Use	Preparation	Part	Species	Family	Notes
<i>Osuga</i>	Earache, toothache, constipation	Pounded, applied to ear, pounded, applied to tooth, decoction drunk	LV, LV, LV	<i>Solanum nigrum</i> L.	Solanaceae	Introduced. Common name also associated with <i>Nicandra physalodes</i> by Kokwaro and Johns (1998)
<i>Nyanjaga</i>	Sore throat, 'Yamo', swelling	Dried, burned, licked	LV	<i>Solanum</i> sp.	Solanaceae	Common name associated with <i>Tagetes minuta</i> by Kokwaro and Johns (1998)
<i>Rayuwe</i>	Worms, 'yamo', stomach ache	Decoction drunk (mixing)	RT	<i>Heritiera littoralis</i> Ait.	Sterculiaceae	See <i>Teramnus labialis</i>
<i>Ofunywa</i>	'Yamo', mouth infection, toothache, 'Woyo', 'Orianyacha'	Decoction drunk, gurgling, steambath, washing, decoction drunk (mixing)	RT	<i>Heritiera littoralis</i> Ait.	Sterculiaceae	Not mentioned by Kokwaro and Johns (1998)
<i>Apoth</i>	'Lep marach', infant's mouth, wounds, makes foetus and infant grow	Pounded, rubbed on tongue and gums, pounded, applied to wound, cooked like vegetable	LV, LV	<i>Corchorus</i> sp.	Tiliaceae	Common name associated with <i>Corchorus olitorius</i> L. by Kokwaro (1972)
<i>Powo</i>	Diarrhoea	Decoction drunk	RT	<i>Grewia trichocarpa</i> Hochst. ex A. Rich.	Tiliaceae	See Kokwaro and Johns (1998)
<i>Owich maoko</i>	Labour pain	Pounded, massaged	LV	<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Common name <i>Owich</i> associated with <i>T. tomentosa</i> and five other species by Kokwaro and Johns (1998). (Name means 'string', hence it refers to string producing plants)
<i>Nyabendwiny</i>	Cold, cough, sore throat	Decoction drunk, infusion drunk	LV,RT	<i>Lantana camara</i> L.	Verbenaceae	Introduced. Common name also associated with <i>L. trifolia</i> and <i>Lippia javanica</i> by Kokwaro and Johns (1998)
<i>Minya</i>	Bloody diarrhoea, skin disorders, ear ache	Decoction drunk, washing with decoction, decoction dripped into ear	RT, BK,RTL, LV	<i>Cissus quadrangularis</i> L.	Vitaceae	Common name also associated with <i>C. rotundifolia</i> by Kokwaro and Johns (1998)
<i>Obuombwe</i>	Stomach ache, 'yamo', 'Hima' (swollen abdomen)	Decoction drunk, pounded, rubbed into incisions on abdomen	RT, RT	<i>Cyphostemma adenocaulle</i> (Steud. ex A. Rich.) Descossings ex Wild and Drumm.	Vitaceae	Common name <i>Obombwe</i> associated with <i>C. orondo</i> by Kokwaro and Johns (1998)
<i>Othoo</i>	Diarrhoea, 'Wuoyo', 'mbaha', diarrhoea, 'Chira', 'Yamo', chestpain, cough	Decoction drunk, steambath, washing, decoction drunk (mixing), pounded with water, drunk, decoction drunk	LV, BK, LV, BK	<i>Balanites aegyptiaca</i> (L.) Del.	Zygophyllaceae	See Kokwaro and Johns (1998)
<i>Achol</i>	Stomach ache, constipation, 'yamo'	Decoction drunk	RT	–	–	Not mentioned by Kokwaro and Johns (1998). Not <i>Aphania senegalensis</i> (Poir.) Radlk. (cf. Johns et al., 1990); insufficient material
<i>Rabongo</i>	'Yamo', stomach ache	Decoction drunk (mixing)	RT	–	–	Not <i>Rhoicissus revouillii</i> Planch. (cf. Johns et al., 1990; Kokwaro and Johns, 1998); insufficient material

All vouchers are deposited in FHO and were collected by Geissler and Prince. All plant names are according to Lebrun and Stork, 1991, 1992, 1995, 1997), except the genus *Cassia* that is split into its component genera according to Lock (1989). Notes refer to Kokwaro and Johns (1998) as standard reference for Luo plant names. (RT, root; BK, bark; LV, leaves; WP, whole plant; SE, seed; FR, fruit).

large District, which stretches from the dry lakeshore to more fertile hills, might explain the very large number of listed plants and these differences in knowledge, but the fact that there was only moderate agreement (i.e. among 7% of the informants) on 15% of the medicinal plants astonished Johns et al. (1990). The mothers' knowledge reported here, and even the children's knowledge reported by Prince et al. (2001) shows higher agreement than that of the traditional healers. This can partially be explained with the fact that they all lived within an area of less than 10 km², whereas Johns et al. (1990) sample covered an entire District. However, it seems as if the communal, consensual core knowledge of recognised traditional healers is neither more coherent nor expansive than that of Luo women, and as if any mothers' knowledge of plant medicine for common illnesses is at least comparable to that of 'healers'. Johns et al. (1990) article does not provide information on the 264 species that fewer than three healers knew, or the 49% of the species that only one reported. However, one can speculate that many of these plants were used to treat specific, less common, and serious illnesses upon the treatment of which the healers have built their reputations. Alternatively, it could be that healers, who make a living from herbal medicines, had both reason to exaggerate their herbal knowledge, and possibly also to hide some of their vital commercial resources.

8. Conclusion

The results of this survey show that Luo women know a wide range of plant remedies in their area that can be used to treat common illnesses, particularly those of young children. Most remedies are used to treat abdominal illnesses, such as diarrhoea and stomach ache. Others are used in the treatment of illnesses that are explained with social and other artologies that are not biomedically recognised. Most of the plant remedies were used for abdominal illnesses and illnesses of small children. The main causes of illness in the study area are microbial and parasitic intestinal infections and malaria. Therefore, it is possible that the medicinal plants reported here are active (in a biomedical sense) against these pathogens. We therefore screened those that had been identified by four or more women for their *in vitro* antimicrobial and antiparasitic activities. The results of these screenings will be reported in a subsequent article.

The mothers' knowledge was in good agreement with findings from school-age children in the same area and with the plants reported by a large sample of healers from northern Luoland. This underlines the fact that the consensual core of Luo traditional medicine, i.e. the medicines that are most commonly used by people against common illnesses, are known by the supposed specialists as well as many other people. This casts

doubt over the familiar notion of the African 'traditional healer' or 'medicine man' being the local equivalent of the western medical doctor. No clear distinction between supposed 'experts' and 'laypeople' can be seen, and mothers and grandmothers emerge in our study as the most experienced practitioners in the field of Luo herbal medicine.

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