



ESSAY ON AFRICAN TRADITION MEDICINE OF THE MAASAI PEOPLE

The Traditional Medicine by Masaai People

In the Maasai community, traditional use of plants for curative purposes is a cultural practice that has been inherited from their ancestors over many generations. For example, young Maasai warriors, the Morans, carry out traditional ceremonies that involve the slaughter of bulls deep in the forest where they gather medicinal plants to prepare a traditional soup for general body health.

The Maasai community is known to possess a rich traditional knowledge on the use of plants for medication dating back probably for centuries, but first documented only in the beginning of the last century. They spend most of their time herding in the savannas and forests searching for fresh pastures and water for their livestock.

As a result, they have a good understanding—acquired over time—of their local surroundings and natural resources.

Of most importance are the plant species in their local environment which provide medicine, construction materials, firewood, and fodder for their cattle.

The available research on medicinal plants of the Maasai of Kenya is highly fragmented, encompassing single villages in different geographical areas of the Maasai land.

There are about 289 medicinal plant species used by the Kenya Maasai .

Leguminosae was the family with most species used as medicine by the Maasai, followed by Asteraceae, Malvaceae, Lamiaceae, and Euphorbiaceae.

22 families (31%) were represented by only one species with medicinal uses in our data

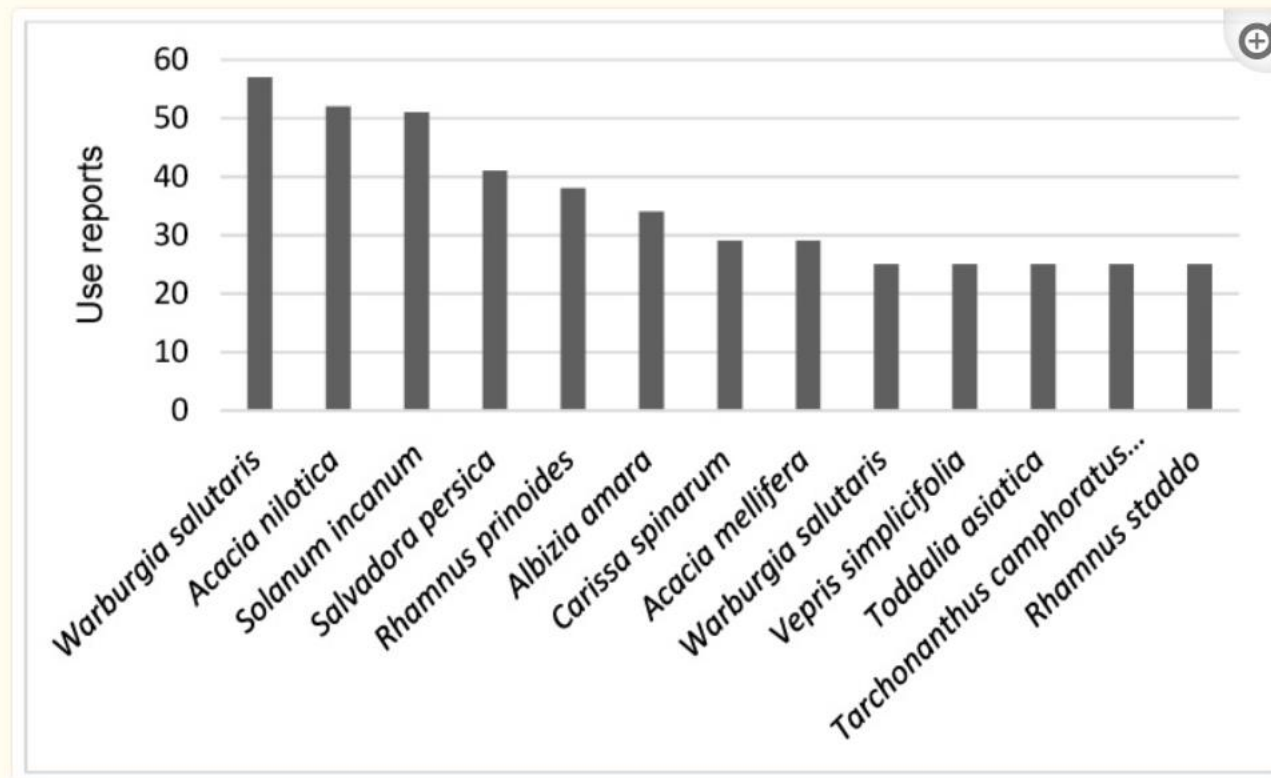


Figure 2

Thirteen medicinal species with 25 or more use reports cited in 19 references concerning Maasai medicinal plants in Kenya and reviewed in this study.

Plant families and their numbers of medicinal plant species used by the Kenya Maasai as cited in 19 references reviewed in this study.

Family	Medicinal Species
Leguminosae	40
Asteraceae	25
Malvaceae	16
Lamiaceae	14
Euphorbiaceae	13
Apocynaceae	8
Rubiaceae	8
Anacardiaceae, Capparaceae, Rutaceae, Vitaceae	7
Oleaceae, Solanaceae	6
Burseraceae, Celastraceae, Meliaceae, Rhamnaceae	5
Acanthaceae, Boraginaceae, Commelinaceae, Primulaceae, Salicaceae	4
Amaranthaceae, Apiaceae, Asparagaceae, Crassulaceae, Ebenaceae, Moraceae, Verbenaceae, Xanthorrhoeaceae	3
Clusiaceae, Araliaceae, Canellaceae, Combretaceae, Cucurbitaceae, Icacinaceae, Olacaceae, Penaeaceae, Plantaginaceae, Poaceae, Podocarpaceae, Polygonaceae, Proteaceae, Ranunculaceae, Rosaceae, Santalaceae, Urticaceae, Zygophyllaceae	2
Linderniaceae, Bignoniaceae, Convolvulaceae, Fagaceae, Hydnoraceae, Hypericaceae,	

The 1844 use reports were classified into 26 health disorder categories following the International Classification of Primary Care classification system (ICPC). Most use records were in the categories Gastrointestinal disorders (504 use reports; 27%) *and* Respiratory system disorders (252 use reports; 14%) .

Nine disorders had more than five use reports per species (

Table 2

The 26 use categories in which the Maasai of Kenya use medicinal plants as encountered in 19 references reviewed in this study. For each use category, the number of species used in the category, the number of use reports encountered for each use category, and the Informant Consensus Factor (ICF) are given.

Categories	Species	Use Reports	ICF Value
Metabolic	1	2	1.00
Social problems	1	2	1.00
Gastrointestinal disorders	171	504	0.66
Respiratory	92	252	0.64
Musculoskeletal disorders	64	134	0.53
Toothache	15	28	0.48
Malaria	78	145	0.47
Urological problems	54	101	0.47
Gynecological disorders	69	127	0.46
Infections	57	93	0.39
Skin disorders	106	158	0.33
Neurological	23	34	0.33
Blood	41	59	0.31
Fever	32	45	0.30
Eye	23	32	0.29
General and unspecified	40	51	0.22

Gynecological disorders	69	127	0.46
Infections	57	93	0.39
Skin disorders	106	158	0.33
Neurological	23	34	0.33
Blood	41	59	0.31
Fever	32	45	0.30
Eye	23	32	0.29
General and unspecified	40	51	0.22
Psychological	14	17	0.19
Venomous animals	20	24	0.17
Nutritional	13	15	0.14
Ear	7	7	0.00
Circulatory	6	6	0.00
Endocrine	4	4	0.00
Injuries	4	4	0.00
Psychological	1	1	0.00
Culture-bound syndromes	1	1	0.00
Immune	1	1	0.00

About two thirds of the primary sources analyzed mentioned which part of the plants that was used, but only 342 (19%) of the use reports mentioned how the plants were prepared before being used and their route of administration.

Roots were the most frequently used plant part, followed by “multiple parts” .

Decoction was the most common preparation method with 230 use reports, followed by pounding (76) and burning (29).

The Maasai make a soup prepared by boiling pieces of meat in water with medicinal plants added for body health and strength.

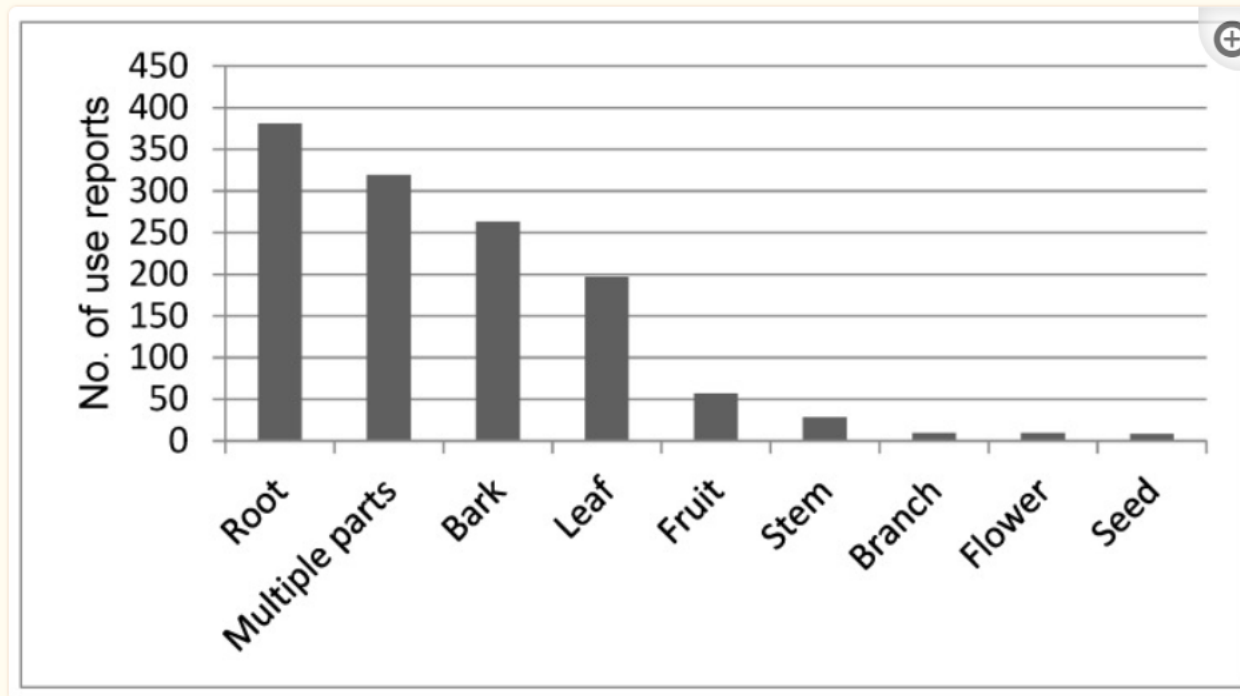
Occasionally, milk, honey, or tea is added to reduce the bitter taste.

The least used methods were eating without any preparation (4) and soaking (3).

Oral administration was the most common route of applying medicine with 25% of use reports followed by smearing, inhaling, and poultice.

For the Maasai, the boiled content is ingested orally and the taste adjusted by adding milk or tea to the medicine. Medicinal plants were also applied directly to wounds or on the skin by smearing or rubbing the squeezed medicinal plant extract directly to the affected areas.

Body steaming and bathing, dropping the medicine in the nose, eye, or ear were also used. However, 68% of the total use reports did not indicate the route of administration.



[Figure 3](#)

Plant parts used for preparing medicine among the Maasai of Kenya as cited in 19 references.

The use of plant-based medicine among the Maasai is still an important component of their culture.

This is demonstrated by the high number of use reports in the primary references ([Figure 4](#)).

It is a solid indication of the diversity of medicinal plants used by this community.

The high reliance of medicinal plants may be due to strong cultural beliefs, high cost of other kinds of health care in Kenya, inaccessibility of governmental health facilities, and the quick and free accessibility of medicinal plants.

The same reasons have been reported among the Samburu of Kenya and in rural communities in southern Ecuador .

Table 3

Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

Medicinal Use Categories	Plant Species	Family	Ethnomedicinal Use (s)	Preparation Method (s)	Part (S) Use	Use-Reports
	<i>Acacia nilotica</i> (L.) Delile	Leguminosae	Aid digestion, appetite enhancer, diarrhea, dysentery	Decoction	Multiple parts	18
	<i>Albizia anthelmintica</i> Brongn.	Leguminosae	Dewormer, diarrhea, emetic, purgative, tapeworm	N/A	Bark, multiple parts	17
	<i>Warburgia ugandensis</i> Sprague	Canellaceae	Constipation, stomachache, diarrhea	Decoction	Bark	15
	<i>Solanum incanum</i> L.	Solanaceae	Abnominal pain, dyspepsia, indigestion, ringworm, stomachache,	Decoction	Fruit	14
	<i>Myrsine africana</i> L.	Primulaceae	Anthelmintic, constipation, purgative,	N/A	Flower, fruit	11

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Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

<i>Ximenia americana</i> L.	Olacaceae	Constipation, stomachache, diarrhea, worms	Decoction	Multiple parts	11
<i>Baccharoides lasiopus</i> (O.Hoffm.) H.Rob.	Compositae	Stomachache, purgative, indigestion	N/A	Multiple parts	10
<i>Salvadora persica</i> L.	Salvadoraceae	Anthelmintic, constipation, stomachache, worms	Decoction	Roots	10
<i>Acacia mellifera</i> (M.Vahl) Benth.	Leguminosae	Appetite enhancer, aid in digestion, Stomachache, reduce vomiting	Decoction	Bark	9
<i>Euclea divinorum</i> Hiern	Ebenaceae	Anthelmintic, constipation, emetics, purgatives, stops vomiting	Decoction	Multiple parts, bark, roots	9

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Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

Gastrointestinal disorder			vomiting			
	<i>Pappea capensis</i> Eckl. & Zeyh.	Sapindaceae	Diarrhea, facilitate digestion, purgative, stomachache	Decoction	Bark	9
	<i>Searsia natalensis</i> (Bernh. ex C.Krauss) F.A.Barkley	Anacardiaceae	stomachache, heartburn, poultice	Decoction	Bark	8
	<i>Warburgia salutaris</i> (G.Bertol.) Chiov.	Canellaceae	Bloating, stomachache, poultice	N/A	Bark	8
	<i>Acacia senegal</i> (L.) Willd.	Leguminosae	Constipation, diarrhea, stomachache	N/A	Bark, root	7
	<i>Olea europaea</i> L.	Oleaceae	Deworming, stomach pain	N/A	Bark	7
	<i>Acacia tortilis</i>		Reduce vomiting,		Multiple	

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<i>Acacia tortilis</i> (Forssk.) Hayne	Leguminosae	Reduce vomiting, indigestion	Pounding	Multiple parts, root	6
<i>Aloe volkensii</i> Engl.	Xanthorrhoeaceae	Diarrhea, stomachache	N/A	Multiple parts	6
<i>Ricinus communis</i> L.	Euphorbiaceae	Purgative, stomachache, diarrhea	Pounding, decoction	Seed, root, multiple parts	6
<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	stomachache, digestion, emetics	Decoction	Bark	6
<i>Turraea mombassana</i> C. DC.	Meliaceae	Dysentery, emetic	N/A	Root	6
<i>Vepris simplicifolia</i> (Engl.) Mziray	Rutaceae	Stomachache, diarrhea, hepatitis	Decoction	Root, bark, multiple parts	6
<i>Boscia angustifolia</i> A. N. S.	Capparaceae	Induce vomiting, diarrhea, anthelmintic,	Decoction	Leaf, bark	5

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Stomachache					
<i>Leonotis ocymifolia</i> var. <i>raineriana</i> (Vis.) Iwarsson	Lamiaceae	Dysentery, indigestion, relieve stomach cramps	N/A	Root, leaf	5
<i>Lippia javanica</i> (Burm.f.) Spreng.	Verbenaceae	Indigestion, tapeworm, Stomachache	Pounding	Leaf	5
<i>Prunus africana</i> (Hook.f.) Kalkman	Rosaceae	Increase appetite, stomachache	Pounding	Leaf	5
<i>Tarchonanthus camphoratus</i> L.	Compositae	Abdominal disorders, diarrhea, tapeworms	Decoction	Leaf, multiple parts	5
<i>Warburgia ugandensis</i> Sprague	Canellaceae	Chest complains, colds, coughs, flu, respiratory	N/A	Multiple parts, bark	12
<i>Toddalia asiatica</i> (L.)	Rutaceae	Bronchial pain, colds, respiratory	N/A	Fruit, root, multiple	10

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Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

Respiratory system disorders	<i>Lippia javanica</i> (Burm.f.) Spreng.	Verbenaceae	Blocked nose bronchitis, colds, coughs, flu, sneezing, stuffy nose	N/A	Multiple parts, leaf, seed	9
	<i>Tarchonanthus camphoratus</i> L.	Compositae	Asthma, bronchitis	Decoction	Leaf, Multiple parts,	8
	<i>Warburgia salutaris</i> (G.Bertol.) Chiov.	Canellaceae	Chest pain, common cold, coughing, pneumonia, respiratory problems	N/A	Multiple parts, bark	8
	<i>Acacia nilotica</i> (L.) Delile	Leguminosae	Chest pains, coughs, pneumonia, tuberculosis, coughs	N/A	Root, bark,	7
	<i>Acacia mellifera</i> (M.Vahl) Benth.	Leguminosae	Pneumonia, chest pains, coughs	Decoction	Bark	5

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Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

<i>Ocimum gratissimum</i> L.	Lamiaceae	blocked nose, colds	Decoction	Leaf	5
<i>Olea europaea</i> L.	Oleaceae	Colds, influenza, pneumonia, respiratory	N/A	Multiple parts	5
<i>Searsia natalensis</i> (Bernh. ex C.Krauss) F.A.Barkley	Anacardiaceae	chest pain, respiratory problems, influenza, coughs	Pounded	Multiple parts, leaf, root	5
<i>Vepris simplicifolia</i> (Engl.) Mziray	Rutaceae	Pneumonia	N/A	Root, multiple parts	5
<i>Salvadora persica</i> L.	Salvadoraceae	Chest pain, cold, flu	N/A	Roots, bark	5
<i>Rhamnus prinoides</i> L'Hér.	Rhamnaceae	Arthritis, backaches, rheumatic	Decoction	Root	11
<i>Carissa spinarum</i> L.	Apocynaceae	Backache, muscle pain, joint problems	Decoction	Root	9

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Plant species, family, main use, preparation methods, parts used, and use reports for the nine medicinal use categories with more than five use reports per species in the 19 references reviewed in this study.

Musculoskeletal disorders	<i>Combretum molle</i> R.Br. ex G.Don	Combretaceae	Backache, pelvic pain	N/A	Root	7
	<i>Kalanchoe glaucescens</i> Britten	Crassulaceae	Rheumatic	N/A	Leaf	6
	<i>Warburgia ugandensis</i> Sprague	Canellaceae	Muscular pains, weak joints	N/A	Multiple parts, bark	6
	<i>Acacia nilotica</i> (L.) Delile	Leguminosae	Arthritis, body aches, painful joints	N/A	N/A	5
	<i>Zanthoxylum usambarense</i> (Engl.) Kokwaro	Rutaceae	Rheumatic pain, backache, joints pains	Decoction	Bark, leaf	5
	<i>Warburgia ugandensis</i> Sprague	Canellaceae	Malaria	Decoction	Bark, multiple parts	7
	<i>Salvadora persica</i> L.	Salvadoraceae	Malaria	N/A	Root	6

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Gynaecological disorders	<i>urepanolobium</i> Sjostedt	Leguminosae	cleaning of the uterus after birth	N/A	stem, bark	7
	<i>Acacia oerfota</i> (Forssk.) Schweinf.	Leguminosae	Cleaning of the uterus after birth, facilitate lactation, facilitate placenta expulsion after birth	N/A	Root	5
Skin disorder	<i>Solanum</i> <i>incanum</i> L.	Solanaceae	Cuts, skin diseases, sores, warts, whitlow	Pounding	Fruit	8
Urological disorder	<i>Rotheca</i> <i>myricoides</i> (Hochst.) Steane & Mabb.	Lamiaceae	Gonorrhea, syphilis, STIs	N/A	Roots	7
	<i>Carissa</i> <i>spinarum</i> L.	Apocynaceae	Syphilis, gonorrhea	Decoction	Roots	7
Neurological disorders	<i>Tarchonanthus</i> <i>camphoratus</i> L.	Compositae	Headache	Burning	N/A	5
Toothache disorders	<i>Salvadora</i> <i>persica</i> L.	Salvadoraceae	Dental caries, toothache	Pounding	Stem	6

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Category of health conditions treated with medicinal plants by the Maasai

The most common category of health conditions treated with medicinal plants by the Maasai of Kenya was gastrointestinal disorders.

More than half of all recorded medicinal species (59%) were used to treat gastrointestinal disorders which contributed 27% of the total use reports.

The category had a high informant consensus factor of 0.66 indicating that the knowledge of use of medicinal plants is largely shared among the Maasai of Kenya occupying different localities.

Kajiado and Narok counties are classified as arid and semi-arid counties with little or no access to clean water. Gastrointestinal disorders such as diarrhea are therefore common.

Diarrhea is a common disease in Africa and is reported to cause death in children. Similar results were recorded in a study on medicinal uses of African palms [45].

Respiratory disorders were the second most common disorder treated with medicinal plants and had a high informant consensus value (0.64) and about 14% of use reports were classified into this category.

In Ethiopia, 16% of the reported medicinal plants species were used to treat respiratory disorders [46].

Muscular-system disorders were the third common disorders that were treated with medicinal plants by the

This could be a result of the Maasai way of life which entails trekking long distances in search of pasture and water for their livestock.

The long walks in the forest and savannas may result in body discomfort such as body pain, muscle aches, and rheumatism.

Malaria was the fourth disorder treated with medicinal plants. Malaria is caused by parasitic protozoa and is reported to cause over a million deaths in Sub-Saharan Africa [47].

We expected Malaria to be common among the Maasai due to their pastoral way of life; they live in areas with tall grass and near water sources which act as mosquitoes' breeding sites, and hence are susceptible to Malaria.

Urological, gynecological, and skin disorders had only two species with more than five use reports and a low informant consensus factor of 0.47, 0.46, and 0.33 respectively.

Neurological and toothache disorders also showed lower intracultural consensus due to few use reports.

This suggests that the knowledge of medicinal plants in the five categories is not shared across geographical locations or within the Maasai groups.

The difference in the use of medicinal plants in the studied counties could be a result of the ease of availability and ecological factors .

The Maasai used many different plant parts for preparing medicine.

There are reports for the use of eight different plant parts ([Figure 2](#)) but many reports did not specify the part used. In this data, roots were the most cited plant part used which agrees with studies conducted elsewhere in Africa .

The preference for using the roots for medication could be as a result of higher concentration of active ingredients than in other parts of the plant .

This contrasts with various other studies conducted in different parts of the Africa that reported leaves as the most frequently used plant part for medication.

In those studies, the preference for leaves was said to be for their abundance and because leaves contain high concentrations of compounds with various medicinal properties.

Compared to leaves, however, roots have the ability to maintain bioactive compounds for a long time after harvesting . The same argument could be true for the Maasai who prefer roots as they can be stored and used later or during harsh environmental conditions such as long droughts when fresh material is not available.

Harvesting of roots and whole plant has the potential to damage the plant and could be unsustainable for some species [[37,58](#)] and more unsustainable than harvest of leaves and fruits which are constantly produced and can be harvested without causing irreversible damage to the plant [[37](#)].

Different methods of preparation of medicinal plants are used in various parts of the world. For the Maasai people in Kenya, we found that decoction was the most frequently used method of preparation.

This is consistent with studies conducted elsewhere that reported decoction to be the most commonly used method for preparation .

Decoction might be the preferred method because of the ease of preparation and the taste of the boiled medicine could easily be adjusted by adding a solvent of choice, mostly water, honey, or milk.

The Maasai's common route of administering the plant derived medicine was oral by drinking, which is the same as found in many other studies.

Even though we present an overview of ways in which medicinal plants were administered, there was missing information for over half of the use reports, which is a common data gap in many ethnomedicinal studies that was also noted by Farnsworth almost 30 years ago .

Homogeneity of Use

Metabolic disorders, social problems, gastrointestinal, respiratory, and musculoskeletal disorders had the highest ICF values, indicating that the plant species used for treatment in these categories were shared by informants .

The other 21 categories had lower ICFs. This suggests that the knowledge of medicinal plants is not necessarily shared across geographical locations or within groups.

The difference in the use of medicinal plants in the studied counties could be a result of the ease of availability and ecological factors .

Our results agreed with a recent study conducted in Thailand , that found that each studied village had its own unique ethnomedicinal knowledge.

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