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Plant Species in the Folk medicine of *Kit Mikayi* Region, Western Kenya

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Abstract

An ethnobotanical survey of medicinal plants used in Kit Mikayi area of Western Kenya was carried out in 2007. The area is adjacent to Lake Victoria, the second largest fresh water lake in the world. Being a shrine, an ethnobotanical survey was conducted with the aim of documenting the local plants of economic value which have over time attracted both local and foreign visitors. Thirty-seven species were documented, and their use values and informant consensus factors were determined. The results were considered as important in defining conservation priorities as well as for further investigation of the identified plants for possible pharmacological applications.

Key words: Ethnobotanical, Informant consensus factors, Use values, Western Kenya.

Introduction

Plants have been an integral part of life in many indigenous communities, and Africa is no exception (Sidigia et al, 1990). Apart from providing building materials, fodder, weapons and other commodities, plants are especially important as traditional medicines. Many tribes in Africa have elaborated plant knowledge (Fratkin 1996, Akama 1999). Western influences have however led to an accelerating decline of this tradition. Most knowledge is still transferred orally in many communities (Fratkin and Mearns 2003). The "Witchcraft Act" of *1925*

outlawed traditional medicine in Kenya. The practice however continued, more concealed, until parts of the law were revoked with independence in 1963 (Sidigia et al., 1990). The western healthcare supplied by the government has been expanded in the last decades, but it is still often not readily available and many regions remain completely underserved.

Furthermore some regions have remained conserved and preserved for historical and cultural purposes in such areas such as Kakamega Forest and Kit Mikayi. Kit Mikayi is a region of Kisumu West district which consists of Kombewa and Maseno divisions. The region is named after an impressive rock "Kit Mikayi" that is close to Lake Victoria and which acts as a beautiful scenery. Apart from the scenic beauty of the formation and the landscape, it has significant cultural meaning for several groups of people. The area traverses the two divisions and extends to Lake Victoria, harboring plants of cultural value that are traditionally used to cure ailments by the local population.

This paper is a report of an ethnobotanical survey of medicinal plants used in Kit Mikayi area of Western Kenya.

Materials and Methods

Field work was conducted from April to November 2007.The information was gathered from ethnobotanical interviews that were limited to herbalists living in remote regions, often with no more than two or three houses, where small families of peasants live. Their economic way of life does not rely entirely on agriculture. Small landholdings, comprising the majority of the land adjacent to the settlements, are used for subsistence farming, and all our informants resided there. Preliminary investigations suggested that people living in larger villages and working in the secondary or tertiary sector did not retain knowledge about the local flora and its uses. Fifty-six participants were initially selected; most of them were women (60% female

and 40% male), aged between 50 and 85 years (average age 65). Open informal interviews were used to collected information. Sixty four people were chosen from the selected participants on the basis of their ability to identify species in the field and to retain traditional knowledge of plant uses. Only the plants indicated by at least two informants were taken into account.

Generally, plants were collected with the informants, who were asked to indicate their vernacular names, the part(s) of the plant and its/their uses, and the preparation procedure. Plant samples were identified in the field, except for dubious cases, which were brought back to the laboratory and identified. Voucher specimens of wild plants reported

by informants in the study area were prepared and deposited in Maseno University Botanic Garden Herbarium.

The Informant consensus factors of the different species were determined according to Moerman (2007) as:

IAR = *n*ur-*ni* / *n*ur-1

Where *n*ur is the number of mentions in each usage set (or indication), and *ni* is the number of taxa represented in each usage set.

$IAR=IC^F$

Results and Discussion

Ethnobotanical investigation in Kit Mikayi has revealed that 37 species, out of a total of about 400 medicinal species in Kenya (Kokwaro, 1976) were identified as been used. Table 1 shows the use value of the different medicinal plants (37 species) and their related applications. The use values of the different plants are almost similar thus suggesting high informant consensus values (Table 2). More than half (58%) of phytoremedies described were quoted by no more than four informants, which represent less than 20% of the total number of informants.
This low consensus distribution suggests that indigenous knowledge are declining in this territory, and could explain the reduced number of plants used in folk therapy. Medicinal species listed belong mainly to Compositae, followed by Fabaceae, both with 6 species, Poaceae *(5),* Fagaceae (4) and Lamiaceae (4). These species are largely represented in the District and medicinal uses of their members have been reported from other regions in Kenya. In general, the phytotherapeutical plant use in the region is typical to all folk medicine, such as the use of the herbs individually or in potions, and the high number of plants administered to relieve pains.

However, a comparison of the plants used in this region with those reported for neighbouring areas revealed that there were many uses that were valued in these plants but were not valued in other locations (20 of the 27 medicinal plants listed were involved), and that frequently, there were changes in the way the plants were administered. However, many of the peculiar medicinal uses documented in this area were quoted by Kokwaro (1993). Moreover, for some of these species, namely *Thunbergia alata* and *Crinum macowanil*, similar uses have been quoted in other countries, mainly in the South America region. Some of these plants have been studied for their chemical and pharmacological properties, and the results could validate the folk therapeutic uses reported by informants. An example of such is the seeds of *Albizia coriaria* L., whose utilization has received clinical validation (WHO, 1999), and *Plectranthus comosus* L., that contains constituents with anti-inflammatory and analgesic properties. Table 2 revealed that most species indicated had IC^F value of 1.

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Table 1. Use Value (UV) of various plants cited in Kit Mikayi region

Plant Name	Local Name	Uses	Part Used	Family Name	C^U	UV
Thunbegia alata(Hook) Sims MSU/BG-5	NYAWEND AGWATA	Mouth/tongue /backache	Leaves	ACANTHACEAE	5	0.078
Lannea Schweinfurthii (Eryl.)Engl. Syn.Lannea stuhlmanii(Engl.)Engl. MSU/BG-6	KWOGO	Headache/Stomach pain	Bark	ANACARDIACEAE	8	0.125
Carissa edulis (Forssk.) Vahl MSU/BG-7	OCHUOGA	Chest pain /Stomachache	Roots	APOCYCEAE	10	0.156
Thevetia Peruviana(Person) Schumann MSU/BG-8	CHAMAMA	Cut/flu	Leaves/Fruits	APOCYNACEAE	5	0.078
Balanites aegyptica L.Del MSU/BG-9	OTHOO	Venereal/Stomach pains	Bark,Fruit, Roots	BALANITACEAE	20	0.312
Markhamia Lutea (Berith)Kschum Syn.M.hide brandtii(Baker)Sprogue.M.Platycalyx Sprague.	SIALA	Conjunctivitis/Labour	Leaves, Roots	BIGNONIACEAE	8	0.125
Kigelia africana(lam)Benth MSU/BG-10	YAGO	Anemial	Fruits, bark	BIGNONIACEAE	12	0.187
Commiphora Africana(A.Rich)Engl.sectin africanae MSU/BG-11	ARU PINY	Stomachache/ Venereal	Roots	BURSERACEAE	10	0.156
Tylosema fassoglense(Schweif) Torre and Hill MSU/BG-12	OMBASA	Kwashiakor	Roots	CAESALPINIACEAE	8	0.125
Tithonia diversifolia (Hemsl.)A Gray MSU/BG-13	Akech	Throat/Stomachache	Leaves	COMPOSITAE	15	0.234
Ageratum conyzoides L. MSU/BG-14	OLUORO CHIENG	Cuts	Leaf/Roots	COMPOSITAE or ASTERACEAE	8	0.125
Bidens pilosa L. MSU/BG-15	ONYIEGO	Eye/Stomachache	Leaf	COMPOSITAE	12	0.187
Acmella calimiza Del. Syn.Spilannthes maurttanum (pers) D.C.A Rich MSU/BG-16	NYAJUOK	Teeth/Sores	Whole/Leaves	COMPOSITAE	10	0.156
Vernonia aemulans .vatke MSU/BG-17	NYABUNG ODEDE	Chest pain Fever	Leaves	COMPOSITAE	12	0.187
Sphaeranthus Cyathuloides O.Hoff M. MSU/BG-18	ADUPA	Measles	Leaves	COMPOSITAE	14	0.2187
Ipomea hildebrandtii Vatke MSU/BG-19	ONG'ONG'O	Stomachache/Measles	Leaves	CONVOLVULALACEAE	18	0.28125
Euclea divinonim Hiern MSU/BG-20	OCHOL	Purgative/toothache	Fruits/bark and roots	EBENACEAE	20	0.3125
Erythrococca bongensis pax MSU/BG-21	OKWERO GWENO	Cough	Leaves	EUPHOBIACEAE	12	0.873
Fuerstia africana T.C.E Tries MSU/BG-22	AREMO	Purgative	Leaves	LABIATAE	10	0.156
Plectranthus comosus Sims Syn. P. barbatus MSU/BG-23	OKITA	Ear problem	Leaves	LABIATAE	12	0.1873
Hyptis pectinata L.point MSU/BG-24	OLUOCHIEL	Stomachache	Roots/Leaves	LABIATAE		
Acacia Lahai Benth MSU/BG-25	ALAKTAR	Skin eruptionc	Bark	LEGUMINOSAE	10	0.156
Albizia Coriaria Oliv MSU/BG- 26	OBER	Venerial/Sore/eyes	Bark	MIMOSOIDAe	8	0.125
Abrus precatorius. L. Spp.africana Verdc MSU/BG-27	OMBULU	Measles/Veneriuals	Whole	PAPILIONOIDEA	3	0.0468
Sida Cuneifolia L. MSU/BG-28	OGUNDU	Stomachache	Roots	MALVACEAE	2	0.03125
Scutia myrtina(Burn) Kurz MSU/BG-29	ONG'ONO	Backachel Chest pain	Root	RHAMNACEAE	4	0.0625
Solanum incanum L. MSU/BG-29	OCHOK	Chest pains, Cuts	Fruits	SOLANACEAE	8	0.125
Rhoicissus revoili Planch	RABONGO MADHAKO	Bacteriostatic	Roots	VITACEAE	2	0.0312
Cyphostemma Serpens A Rich MSU/BG-30	BWOMBWE	Boils	Leaf	VITACEAE	4	0.0625
Maerlia edulis L MSU/BG-31	AMOYO	Antiveneral	Roots	CARPPARIDACEA	7	0.1093

Warburgia salutaris L. MSU/BG-32	AJUA	Stomachache toothache fever Constipation	Bark	CANELLACEAE	13	0.202
Ormocarpum Trachocarpum L MSU/BG-33	DET	Antimiscarriage	Bark	LEGUMINOSEAE	9	0.1406
Agave sisalama L MSU/BG-34	TUORO	Stomachache Disinfectacnt	Leaf	AGAVACEAE	11	0.1718
Sesbania sesban L	OSAO	Stomachache	Leaf	LEGUMINOSOE	8	0.25
Chenopodium Opulifolium L MSU/BG-35	ONGODO	Liver	Leaf	CHENOPODIACEAE	2	0.03125
Acanthus Pubescens L MSU/BG-36	OYWECH	Liver	Leaf	ACANTHACEAE	4	0.0625
Croton dischogamus MSU/BG-37	OKWACH	Inhalation Fumigatio fever	Leaf/Roots	EUPHORBIACEAE	16	0.25

$UV=C^U/64$ UV = EU/n, where UV = use value of an ethnospecies (species based on folk names), U = number of quotations perethnospecies n = number of informants=64.

Table 2. Informant consensus factor ICF values of species on various disease categories.

	C^A	C^B	C^C	C^D	C^E	IC^F
1	Mouth/Tongue	3	8.108	5	5.1	0.5
2	Backache	2	5.405	3	3.06	0.5
3	Headache	1	2.702	2	2.04	1
4	Stomachache	11	29.7297	20	20.4	0.47
5	Chest pains	4	10.810	7	7.1	0.5
6	Venerials	5	13.5135	9	9.1	0.5
7	Cut	3	8.108	5	5.1	0.5
8	Flu	1	2.702	2	7.1	1
9	Conjunctivitis	1	2.702	2	2.04	1
10	Anemia	1	2.702	2	2.04	1
11	Kwashiokor	1	2.702	2	2.04	1
12	Throat	1	2.702	2	2.04	1
13	Eye	2	5.405	3	3.06	0.5
14	Measles	3	8.108	5	5.1	0.5
15	Sores	2	5.405	3	2.04	0.5
16	Fever	2	5.405	3	3.06	0.5
17	Purgative	2	5.405	2	2.04	0
18	Cough	1	2.702	2	2.04	1
19	Ear problem	1	2.702	2	2.04	1
20	Skin eruption	1	2.702	2	2.04	1
21	Bacteriostatic	1	2.702	2	2.04	1
22	Boils	1	2.702	2	2.04	1
23	Constipation	1	2.702	2	2.04	1
24	Disinfectant	1	2.702	2	2.04	1
25	Liver	2	5.405	3	3.06	0.5
26	Inhalation	1	2.702	2	2.04	1
27	Fumigation	1	2.702	2	2.04	1
	TOTAL	**37**	100	**N(98)**	100	XXX

C^A =Disease category

C^B =Number of species for the disease category

C^C =C^B/**37 (37= Number of species cited)**

C^D =Number of citations for the disease category

C^E = **C^D/98 (98=Total number of citations)**

IC^F = Informant consensus factor=(C^D- C^B)/ (C^D-1) (Moerman , 2007)