



## Plants Traditionally Used in Treating Malaria, Typhoid Fever and Piles in the Wa Municipality and Wa East (Funtsi) District of the Upper West Region of Ghana

<sup>1</sup>Sam, G.H., <sup>2</sup>Mensah, M.L.K., <sup>3</sup>Annan, Kofi and <sup>4</sup>Sena Zahree

<sup>1,2,3</sup>Department of Herbal Medicine, College of Health Sciences, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana.

<sup>4</sup>Department of Pharmacognosy, College of Health Sciences, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana.

Sam, G.H., Mensah, M.L.K., Annan, Kofi and Sena Zahree; Plants Traditionally Used in Treating Malaria, Typhoid Fever and Piles in the Wa Municipality and Wa East (Funtsi) District of the Upper West Region of Ghana

### ABSTRACT

Malaria, typhoid fever and piles are serious health problems around the world. The World Health Organization estimates that there are between 300 and 500 million new cases of malaria and over 2.16 million new cases of typhoid fever occurred worldwide every year. Malaria, typhoid fever and piles are the most prevalent diseases in the Wa Municipality and Wa East (Funtsi) District of Upper West Region of Ghana. Traditional healers (herbalists) in these rural areas claim to have been handling these diseases effectively with herbs over the years. However, there is no documentation of these herbs and the way they are used. It is important then to undertake a study to document these herbs to safeguard their rational and safe use and subsequent scientific standardization. This survey therefore aimed at identifying and documenting plants used traditionally in treating malaria, typhoid fever and piles in the Wa Municipality and Wa East (Funtsi) District of Upper West Region of Ghana. Semi-random sampling was employed in the survey. Fifty one traditional healers were interviewed from July 10<sup>th</sup> to July 24<sup>th</sup> 2010. Upon arrival at the house of each of the traditional healer, introductions were done and the purpose of the visit stated. Each traditional healer was made to answer a set of questions. Since most of the traditional healers were illiterates, the questions had to be translated into the local dialect. The answers provided were used to complete the questionnaire. Wherever necessary, collected specimens were coded in the field for identification later. The data collected were analyzed using Microsoft Excel. The analysis of the survey indicated that 59 plant species were cited for the treatment of the three diseases. Twenty-two species from nineteen families were cited for the treatment of malaria. Twenty-one species from ten families were cited for the treatment of typhoid fever and eighteen species from fifteen families for management of piles. The study has also identified and documented the anti-malarial use, probably, for the first in Ghana of three species namely *Haematostaphisbarteri*, *Monanthotaxis* sp and *Strychnosinnocua* and, first time use of *Khayasenegalensis*, *Haematostaphisbarteri*, *Mitragynainermis*, *Monanthotaxis* sp, *Eucalyptus camaldulensis*, *Cochlospermumtinctorium* and *Acanthospermumshuspidum* for the treatment of typhoid fever and first time usage of *Piptoporusbetulinus* and *Vignea subterranean* for the treatment of piles. Majority of healers claim to treat malaria between 4-7 days, typhoid, within seven days and piles 1-2 weeks. The survey has unearthed potential sources of remedies for the treatment of the three selected diseases, malaria, typhoid fever and piles

**Key words:** medicinal plants, treatment, malaria, typhoid, piles, Ghana.

### Introduction

Plants have been used for various purposes since prehistoric times [6,8,5]. Indian Ayurveda medicine used herbs as early as 1900 BC describing about 700 medicinal plants [3]. Herbal medicine was also important from early days in Europe. Dioscorides who became popular with natural remedies about 60 AD described over 600 plants and plant extracts [5]. Sir William Osler (1849-1919) a physician, born in

Ontario, Canada described morphine as "God's own medicine" [7].

In Ghana, the knowledge about medicinal plant uses has been passed on mainly through folklore. Recently, however, a few have been documented in many emerging publications including Ghana herbal Pharmacopoeia and Floristic Studies of Ghana [11,9]. However, many more plants need to be documented for immediate research and use and for posterity, even more so when plant use varies highly

### Corresponding Author

Sam, G.H., Department of Herbal Medicine, College of Health Sciences, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana.  
E-mail: ghenrysam@gmail.com.

from place to place. In a situation where it has become a common knowledge that majority of the Ghanaian population estimated at 65% live in rural areas and are highly dependent on traditional herbal medicine, documentation as a prelude to research and standardization of the medicinal plants in use for various ailments is a necessity to safeguard their rational and safe use. The World Health Organization estimates that there are between 300 and 500 million new cases of malaria worldwide, every year, mostly in Africa, Asia, South Pacific Islands and South America, which causes, at least, 3 million deaths. The main drugs developed for malaria and used up to now were discovered based on traditional use and ethno medical data. Therefore new efforts to search for novel drugs for treating malaria are very important in countries like Ghana, where many endemic areas still exist [12,2]. In 2000, it was estimated that over 2.16 million episodes of typhoid occurred worldwide, resulting in 216,000 deaths [10]. This study therefore aimed at obtaining and identifying plants traditionally used in the treatment of malaria, typhoid fever and piles in the Wa municipality and Wa East District of Ghana with the hope that potential sources of treatments can be unearthed from medicinal plants. Malaria, typhoid fever and piles are the most prevalent diseases in these areas.

## Materials and methods

### *Area of Study:*

The area of study is Wa Municipality and Wa East (Funi) Districts of the Upper West Region. The Upper West Region of Ghana is located in the north-western corner of the country and is bordered by Burkina Faso to the north and La Cote D'Ivoire to the west. The capital and largest town is Wa. Other major towns include Nandom, Daffiema, Jirapa, Kaleo, Nadowli, Lawra, Tumu and Funi. The major ethnic groups are the Dagaba, Sisaala and Wala. The Dagaba live in the western part of the district, the Sisaala live in the eastern areas, and the Wala live in South-western part of the district. The Sisaala and Dagaba are mostly Christians and animist, while most Wala are Muslims. Waali, the language of the Wala, and Dagaare, the language of the Dagaaba are mutually intelligible.

The major economic activity of the region is agriculture. Crops grown include corn, millet, groundnuts, okro, and rice. Mainly Sheep, goats, fowls and guinea fowls are raised for meat and eggs. The region has two main seasons—the wet season which is short covering May to September and the dry season extending roughly from October to May. The vegetation is Guinea savannah. Using the 2000 population census figures, Wa Township has a population of 576,583. About 7 out of every 10 males can be said to be literate but only about 4 out

of every 10 females are literates (Ghana population census, 2000).

### *Sampling Technique:*

Semi-random sampling (Burns, 2000) was employed. Each of the healers using various plants was met by chance in the selected area. Fifty one traditional healers were interviewed. All 51 healers were visited within from July 10<sup>th</sup> to July 24<sup>th</sup> 2010. Upon arrival at the house of each of the traditional healer, introductions were done and the purpose of the visit stated. After each interview, the healer was thanked and a packet of sugar given out to him/her as a sign of appreciation. Each traditional healer was made to answer a set of questions. Since most of the traditional healers were not formally educated, the questions had to be translated into the local dialect. The answers provided were used to complete the questionnaire. Wherever necessary, collected specimens were coded in the field for identification later.

### *Data rationalization:*

The plants collected were identified by their vernacular names and their scientific equivalent found and documented.

### *Analysis of data:*

The data collected were analyzed using Microsoft Excel.

### *Results and analysis:*

The information obtained through the interview was grouped into two broad areas: a) Botanical source and part of the plant used in treatments and b) all other related information. The names of plants appearing in the survey are summarized in table 1. In table 2, the methods of preparing the medicines from the plants have been summarized.

### *Disease frequency of occurrence and treatment:*

Table three summarizes the frequency of malaria treatment by healers. Twenty-six healers claimed to treat between six to fifteen cases of malaria a week. Eleven healers claim to treat sixteen to twenty-five cases of malaria a week. These values are high and it could therefore be said that malaria is predominant in the area. The time used to treat malaria, typhoid fever and piles are also summarized in tables 4, 5 and 6. Of the fifty-one healers interviewed, forty-six of them treat typhoid fever. Five did not handle the disease at all (Table 7).

Thirty-eight of the fifty-one healers interviewed claimed to treat piles (Table 8).

**Table 1:** Plants cited in the study area.

Vernacular name <sup>1,2</sup> (Waale-Sissali)	Scientific name	Family	Use/S
1. Naahoonyeko□biri	<i>Paulina pinnata</i>	Sapindaceae	Malaria
2. Gbalenbili	<i>Cochlospermum tinctorium</i>	Bixaceae	Malaria
3. Kogo	<i>Khayasenegalensis</i>	Meliaceae	Malaria
4. Sunsugree	<i>Aradirachta indica</i>	Meliaceae	Malaria
5. Dondoleeyelee	<i>Mitragynainermis</i>	Rubiaceae	Malaria
6. Nansaalesunsugree	<i>Cassia sieberiana</i>	Leguminosae	Malaria
7. Guava	<i>Psidium guajava</i>	Myrtaceae	Malaria
8. Bedawsaalong	<i>Sidaacuta</i>	Malvaceae	Malaria
9. Nyegimaalee	<i>Hoslundia opposita</i>	Labiatae	Malaria
10. Bogovaare	<i>Acanthospermum hispidum</i>	Compositae	Malaria
11. Magengeri	<i>Carica papaya</i>	Caricaceae	Malaria
12. Vape□laa	<i>Strychnos innocua</i>	Logoniaceae	Malaria
13. Puhae	<i>Tamarindus indica</i>	Caesalpinadeae	Malaria
14. Kambasagha	<i>Lippia adoensis</i>	Verbenaceae	Malaria
15. Kyuuna	<i>Combretum ghasalense</i>	Combretaceae	Malaria
16. Kpela	<i>Pseudoedelakotschi</i>	Meliaceae	Malaria
17. Gbentori	<i>Lannea acida</i>	Anacardiaceae	Malaria
18. Haarielel	<i>Alchornea cordifolia</i>	Euphorbiaceae	Malaria
19. Gimberi	<i>Haemastaphis barberi</i>	Anacardiaceae	Malaria
20. Myanbeine	<i>Monanthon taxisp</i>	Annonaceae	Malaria
21. Lumbumihuu	<i>Citrus aurantifolia</i>	Rutaceae	Malaria
22. Simbiri	<i>Vigna subterranea</i>	Fabaceae	Piles
23. Bawye□lee	<i>Phyllanthus discoideus</i>	Euphorbiaceae	Piles
24. Mongo	<i>Mangifera indica</i>	Anacardiaceae	Piles
25. Bilenbi	<i>Plumbago zeylanica</i>	Plumbaginaceae	Piles
<b>Table 1:</b> Plants cited in the study area (continued).			
26. Shiwaaka	<i>Veronia amygdalina</i>	Asteraceae	Piles
27. Jumburi	<i>Kigelia africana</i>	Bignoniaceae	Piles
28. Misi	<i>Xylopi aethiopica</i>	Annonaceae	Piles
29. Nyegimaalee	<i>Hoslundia opposita</i>	Lamiaceae	Piles
30. Satutulee	<i>Monadoromyristica</i>	Annonaceae	Piles
31. Bedawsaalong	<i>Sidaacuta</i>	Malvaceae	Piles
32. Duosingbuo	<i>Piptoporus betulinus</i>	Fomitopsidaceae	Piles
33. Kogo	<i>Khayasenegalensis</i>	Meliaceae	Piles
34. Moose sunsugree	<i>Dialium guineense</i>	Leguminosae	Piles
35. Kooka bark	<i>Harungana madagascariensis</i>	Hypericaceae	Piles
36. Kwagiri	<i>Corchorus solitorius</i>	Tiliaceae	Piles
37. Maakyehaa	<i>Blighia sapida</i>	Sapindaceae	Piles
38. Guongae	<i>Nauclea latifolia</i>	Rubiaceae	Piles
39. kpakpaga	<i>Emilia sonchifolia</i>	Asteraceae	Typhoid fever
40. Shiwaaka	<i>Veronia amygdalina</i>	Asteraceae	Typhoid fever
41. Kogo	<i>Khayasenegalensis</i>	Meliaceae	Typhoid fever
42. Gimberi	<i>Haemastaphis barberi</i>	Anacardiaceae	Typhoid fever
43. Dondolyelee	<i>Mitragynainermis</i>	Rubiaceae	Typhoid fever
44. Myanbeine	<i>Monanthon taxisp</i>	Annonaceae	Typhoid fever
45. Baabili	<i>Eucalyptus camaldulensis</i>	Myrtaceae	Typhoid fever
46. Odubrafo(Twi)	<i>Mareya micrantha</i>	Euphorbiaceae	Typhoid fever
47. Gyama (Twi)	<i>Alchornea cordifolia</i>	Euphorbiaceae	Typhoid fever
48. Gbalenbile	<i>Cochlospermum tinctorium</i>	Bixaceae	Typhoid fever
49. Bogovaare	<i>Acanthospermum hispidum</i>	Compositae/ Asteraceae	Typhoid fever
<b>Table 1:</b> Plants cited in the study area(continued).			
50. Kongo□			Typhoid fever
51. Pootei (Twi)			Typhoid fever
52. Logone□he			Typhoid fever
53. Kponkpolo			Malaria
54. Gronongtikpa (Gonja)			Typhoid fever
55. Baabean			Typhoid fever
56. Simago□			Typhoid fever
57. Logone□he			Typhoid fever
58. Lawkperi			Typhoid fever
59. Konbarisaaka(Gonja)			Piles

**Table summary:** Plant species for Malaria, 22; typhoid, 19; piles, 18<sup>1</sup> Unless otherwise stated, the vernacular names are Waale-Sissali.<sup>2</sup> Plants numbered 50 to 59 have not been identified by their scientific names.

**Table 2:** Plants and methods of preparation for use in the study area.

Plant Species	Local Name (Waale-Sissali)	Indication	Method of Preparation
<i>Paulina pinnata</i>	Naahoonyekobiri	Malaria:	Boil leaves and drink three times daily
<i>Cochlospermum tinctorium</i>	Gbalenbili	Malaria	Boil chopped roots and drink
<i>Khayasenegalensis</i>	Kogo	Malaria	Boil stem bark and drink
<i>Aradirachta indica</i>	Sunsugree	Malaria	Boil leaves, drink and use for steam bath
<i>Mitragynainermis</i>	Dondoleeyelee	Malaria	Boil leaves and twigs and drink 3 times daily
<i>Psidium guavaja</i>	Guava	Malaria	Boil leaves and drink decoction
<i>Sidaacuta</i>	Bedawsaalong	Malaria	Drink leave decoction 3 times daily
<i>Hoslundia opposita</i>	Nyegimaalee	Malaria	Boil leaves and drink 3 times a day
<i>Cassia sieberiana</i>	Nansaalesunsugree	Malaria	Boil chopped roots and drink. Boil leaves and use as steam bath
<i>Acanthospermum hispidum</i>	Bogovaare	Malaria	Boil leaves and drink and also use as steam bath
<i>Citrus aurantifolia</i>	Lumbimihuu	Malaria	Boil leaves and/or fruit juice and drink. (May add sugar)
<i>Carica papaya</i>	Magengeri	Malaria	Boil leaves with leaves of <i>Azadirachta indica</i> and drink
<i>Strychnos innocua</i>	Vapelaa	Malaria	Drink leave decoction
<i>Tamarindus indica</i>	Puhae	Malaria	Boil leaves and stem bark and drink decoction 3 times daily
<i>Lippia adoensis</i>	kambasagha	Malaria	Boil leaves and drink twice daily (May add sugar)
<i>Combretum ghasalense</i>	Kyuuna	Malaria	Boil leaves and drink decoction
<i>Lannea acida</i>	Gbentori	Malaria	Boil leaves with leaves of <i>Mangifera indica</i> . Drink and use as steam bath for three days
<i>Alchornea cordifolia</i>	Haarielel	Malaria	Boil leaves and drink decoction
<i>Haematostaphis barteri</i>	Gimberi	Malaria	Boil leaves with leaves of <i>Pseudocedrelakotschyi</i> Drink twice daily
<i>Monanthe taxissp</i>	Myanbeine	Malaria	Boil leaves and twigs and drink 3 times daily
<i>Vignea subtterranea</i>	Simbiri	Piles	Char leaves and mix with Shea butter and apply to the area
<i>Phyllanthus discoideus</i>	Bawyelee	Piles	Burn leaves and let smoke pass over area. Char leaves, mix with shea butter and apply to affected area
<i>Mangifera indica</i>	Mongo	Piles	Burn stem bark and let smoke pass over affected area. Boil leaves with <i>Xylopiiaethiopica</i> fruit and drink.
<i>Plumbago zeylanica</i>	Bilenbi	Piles	Boil leaves and use as enema
<i>Kigelia africana</i>	Jumburi	Piles	Burn leaves and fruits and let smoke pass over area. Apply charred leaves and fruit with shea butter and apply
<b>Table 2:</b> Plants and methods of preparation for use in the study area (continued).			
<i>Xylopiiaethiopica</i>	Misi	Piles	Grind fruit and mix with Shea butter and apply to area. make fruit decoction and drink
<i>Hoslundia opposita</i>	Nyegimaalee	Piles	Boil leaves, add fruit juice of <i>Citrus aurantifolia</i> and drink
<i>Monadoramyristica</i>	Satutulee	Piles	Char leaves, mix with shea butter and apply to affected area. Boil leaves and drink 2 times a day
<i>Veronia amygdalina</i>	Shiwaaka	Piles	Grind leaves and boil in water with <i>Tamarindus</i> . Strain and drink infusion. May add sugar.
<i>Sidaacuta</i>	Bedawsaalong	Piles	Grind charred leaves and mix with shea butter and apply to affected area
<i>Piptoporus betulinus</i>	Duosingbuo	Piles	Grind and mix with shea butter and apply to affected area
<i>Khayasenegalensis</i>	Kogo	Piles	Boil stem bark and leaves and drink and use as enema
<i>Khayasenegalensis</i>	Kogo	Piles	Grind stem bark, boil sieve and drink 3 times daily
<i>Dialium guineense</i>	Moose sunsugree	Piles	Grind charred leaves, mix with Shea butter and apply area. Boil leaves and drink 2 times daily
<i>Harunganamadagascariensis</i>	Kooka bark	Piles	Burn stem bark and let smoke pass over area. Grind bark boil and sieve and drink
<i>Corchorus solitorius</i>	Kwagiri	Piles	Boil leaves and drink 3 times daily
<i>Blighiasapida</i>	Maakyehaa	Piles	Boil leaves and stem bark and drink. Char stem bark and grind and mix with Shea butter and apply to area
<i>Emilia sonchifolia</i>	Kpakpaga	Typhoid fever	Boil chopped leaves and drink 3 times a day
<i>Veronia amygdalina</i>	Shiwaaka	Typhoid fever	Boil chopped leaves with <i>Tamarindus</i> and drink
<i>Khayasenegalensis</i>	Kogo	Typhoid fever	Boil stem bark and leaves and drink
<i>Mitragynainermis</i>	Dondoliyelee	Typhoid fever	Boil leaves and twigs with leaves of neem tree and drink. May add sugar.
<i>Chorchorus solitorius</i>	Kwagiri	Typhoid fever	Boil leaves and drink
<i>Monanthe taxissp</i>	Myanbeine	Typhoid fever	Boil leaves and drink 3 times daily. Use as steam bath.

Plant Name	Preparation Method	Disease Treated	Preparation Method
<i>Mareyamicrocarpa</i>	Odubrafo	Typhoid fever	Boil leaves with leaves of <i>Veroniaamygdalina</i> and drink
<i>Alchornea cordifolia</i>	Gyama	Typhoid fever	Boil leaves and drink
<i>Acanthospermum hispidum</i>	Bogovaare	Typhoid fever	Grind leaves with hot pepper, sieve and drink
<i>Cochlospermum tinctorium</i>	Gbalenbili	Typhoid fever	Boil chopped roots and drink

**Table 3:** Frequency of malaria treatment.

Number of Cases of Malaria Seen in A Week	Number of Healers
1-5	5
6-15	26
16-25	11
≥26	5

**Table 4:** Duration of time used to treat malaria.

Number of Days Used To Treat Malaria	Number of Healers
0-3	23
4-7	24
≥8	0

**Table 5:** Duration of time used to treat typhoid fever.

Period Used in Treating Typhoid Fever (Weeks)	Number of Healers
0-1	15
1-2	22
2-3	5
3-4	2
≥4	1

**Table 6:** Duration of time used to treat piles.

Period Used In Treating Piles (Weeks)	Number of Healers
0-1	11
1-2	14
2-3	10
3-4	2
≥4	1

**Table 7:** Frequency of typhoid fever treatment.

Number of Healers	Number of Cases of Typhoid Fever Seen In A Week
19	0-5
20	6-15
4	16-25
3	≥25

**Table 8:** Frequency of treating piles

Number of Cases of Piles Seen In A Week	Number of Healers
0-5 cases	16
6-15 cases	22

### Discussion:

This study was conducted to collect and identify plants traditionally used to treat malaria, typhoid and piles in the Funsu District and Wa Municipality.

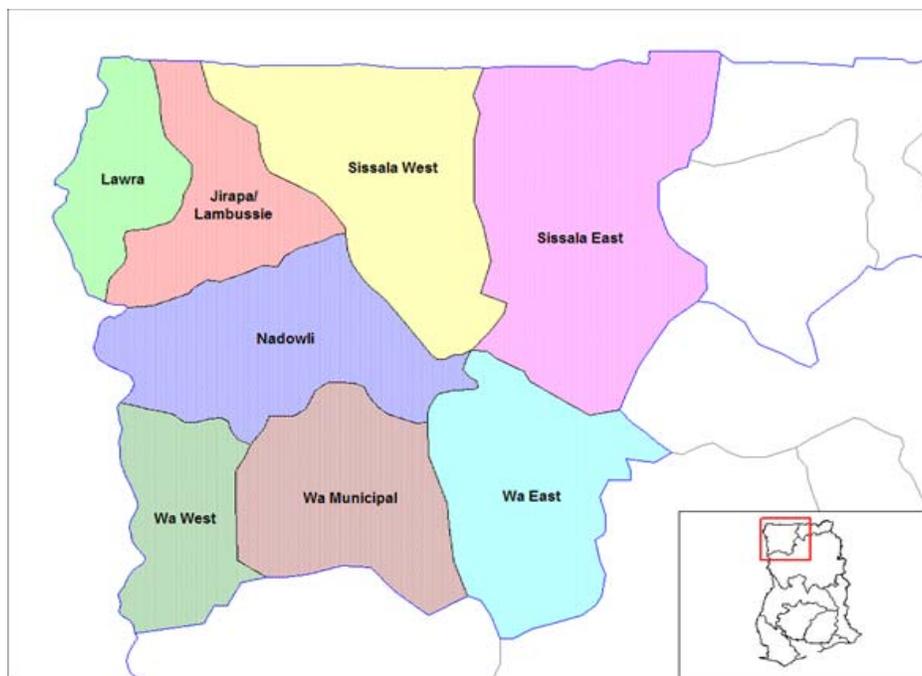
The anus is surrounded by many blood vessels including the very weak '2,7,9 haemorrhoidal veins'. If these become dilated and swollen, they project into the anal canal or out of the back passage to form visible swellings. The traditional healers interviewed generally described piles as a haemorrhoidal growth in the anus which is usually characterized by severe pain during defecation. Faeces of patient normally contain mucous and blood. This description fits allopathic concept of piles very well however, the healers notion that piles may also affect the eyes of the patient causing them to itch is questionable.

Malaria was described by healers as a disease that causes fever, headache, loss of appetite, malaise

sometimes accompanied by vomiting and dizziness. However these symptoms described by the healers are not peculiar to malaria alone since many other disease states such as typhoid may present with similar symptoms. Typhoid itself was diagnosed by symptoms such as fever, malaise, headache, vomiting, diarrhoea and constipation. Though the symptoms given by healers tallies with allopathic descriptions, the healers need to refer patients to laboratory for confirmation diagnosis.

The study has provided information about the species of plants used in the treatment of malaria, typhoid fever and piles in the Wa and Funsu districts.

The species used in the treatment of malaria represents 37.3% of the total species reported whilst that of typhoid fever represents 32.2% and that of piles, 30.5% of the total species reported.



**Fig. 1:** Study area, Wa Municipality and Wa East(Funsi) District of Upper West Region of Ghana.

Most of the species used to treat malaria in the two areas are known to be anti-malarial plants and thus corroborate data from among other sources including Abbiw [1] and Mshana *et al* [9], but the study has also identified and documented the anti-malarial use probably for the first in Ghana of three species namely *Haematostaphisbarteri*, *Monathotaxissp* and *Strychnosinnocua*. Also for the first time, the use of *Khayasenegalensis*, *Haematostaphisbarteri*, *Mitragynainermis*, *Monathotaxissp*, *Eucalyptus camaldulensis*, *Cochlospermumtinctorium* and *Acanthospermushispidium* for the treatment of typhoid fever was recorded. First time usage of *Piptoporusbetulinus* and *Vignea subterranean* for management of piles was also recorded. Interestingly, there was some overlap in the species used in the treatment of malaria and typhoid fever. This could be either because some healers probably did not know the difference between malaria and typhoid fever and so treated the two diseases as the same illness or it could be just that the species used had both anti-malaria and anti-typhoid fever properties.

Thirty-three percent of the healers claim they see one week to treat typhoid. This information is particularly important since the condition is treated in a minimum of 10-14 days with conventional treatment methods. The data provided could thus provide more effective and easier methods of treating the condition. Generally the healers use at least three days to treat malaria and a maximum of a week (7 days) to treat the condition despite the differences in

recipe. This data is therefore a prelude for standardization of preparations for wider use.

The frequency of treatment of the diseases (malaria, typhoid fever and piles) and the ability of herbalists encountered in the course of the study, in giving at least one herbal prescription for the diseases show the prevalence of the diseases in the area and how they have been tackled over time. Therefore these findings suggest that medicinal plants for the therapy of these conditions in the two districts are potential sources for the development of new drugs from indigenous plants from these two areas.

#### Conclusion:

Twenty-two species from nineteen families have been identified for the treatment of malaria in the Wa Municipality and Wa East (Funsai) District Upper West Region of Ghana. Twenty-one species from ten families have been identified for the treatment of typhoid fever and eighteen species from fifteen families have been identified for management of piles in the two districts.

*Cochlospermumtinctorium*, *Khayasenegalensis*, *Haematostaphisbarteri*, *Mitragynainermis* and *Acanthospermushispidium* have been identified as being used to treat both malaria and typhoid fever by some healers in the two districts. The study has also identified and documented the anti-malarial use, probably, for the first in Ghana of three species namely *Haematostaphisbarteri*, *Monathotaxissp* and

*Strychnos innocua* and. Also for the first time, the use of *Khayasenegalensis*, *Haemastostaphis barberi*, *Mitragynainermis*, *Monanthotaxis* sp., *Eucalyptus camaldulensis*, *Cochlospermum tinctorium* and *Acanthospermum hispidum* for the treatment of typhoid fever was recorded. First time usage of *Piptoporus betulinus* and *Vigneasubterranean* for the treatment of piles was also recorded.

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