

Some medicinal plants used in the treatment of hypertension, diabetes and diarrhea by traditional practitioners in Meiktila

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Abstract

A study on some medicinal plants used in the treatment of hypertension, diabetes and diarrhea by traditional practitioners was carried out in Meiktila. Medicinal uses of these plants were studied by interviewing with 15 traditional practitioners. 22 medicinal plants are being practically used for treatment of hypertension, diabetes and diarrhea ailments. The presented species were described with the outstanding characters, medicinal uses and parts used. Three ailments can practically be cured and use value (UV) of 22 species was also calculated. Among them, *Moringa oleifera* Lam. showed the highest use value (UV=1.8) and *Acacia nilotica* (L.) Delile showed the lowest use value (UV=0.13). In comparisons of the usages, an index of performance (*Ip*) was calculated for each plant species from the number of citations of treatment actually recorded. Seven species were used in hypertension. Among them, five species showed the very high performance (*Ip* = 3) and two species showed the average performance (*Ip* = 1). In diabetes, five species showed the high performance (*Ip* = 2) and three species showed (*Ip* = 1). Nine species showed the (*Ip* = 2) and one species showed the (*Ip* = 1) for diarrhea.

Key words: Medicinal plants, Traditional practitioners, Ailments, Use value (UV), Index performance (*Ip*).

Introduction

Medicinal plants and plant-derived medicine are widely used in traditionally in all over the world and they have also become increasingly popular in modern society as natural alternatives to synthetic chemicals. As more and more natural remedies are being commercialized, there is a need for a user-friendly as well as scientifically accurate reference guide to the plants and their production.

In high-income countries, the widespread use of phytotherapy declined at the end of the first part of the twentieth century, due to the development and production of synthetic medicines. During the past few decades, however, phytotherapy has started to be increasingly used even in industrialized countries. In low- and middle-income countries, phytotherapy has never stopped being important (WHO, 2007).

Herbal medicines constitute the main component of traditional medicine, which have been used since thousands of years ago. Long tradition of use of many herbal remedies and experiences passed on from generation to generation has brought about reliance by the people on herbal medicines. At present, the use of herbal medicinal plants for health products is increasing worldwide (WHO, 2010).

Nowadays, traditional or alternative medicine plays an important role internationally. In place of chemicals, natural raw materials are increasingly being used in medical treatment and pharmaceutical industries.

Traditional medicines are an integral part of people's culture and are used extensively by the peoples in developing countries for their primary health care. A rich heritage of traditional medical knowledge and the use of plants as medicines still exist in Myanmar which have been inherited from earlier generations. However, many areas in Myanmar are now experiencing rapid changes. Traditional knowledge as well as plants that the traditional healers rely upon are being lost at an alarming rate. Therefore, it is important that immediate steps be

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taken to protect the important source of traditional knowledge on the art of healing performed by the traditional medicine practitioners in Myanmar, their success stories, together with an inventory of some medicinal plants, and traditional knowledge pertaining to their use, including preparation and administration.

Traditionally, herbalists' knowledge of medicinal plants and their usage have been transferred orally from generation to generation. Therefore, it is necessary to record the local herbalist's knowledge on plants in traditional medicine.

In the present study, some medicinal plants growing in Meiktila were collected and studied. In the study area, there was so far no information concerning traditional uses of medicinal plants. Therefore, this area was chosen to study and traditional uses of medicinal plants were carried out, with the following aims and objectives: to identify the medicinal plants grown in Meiktila; to inform the folk remedies and uses of medicinal plants for the most common three diseases in Myanmar; to help people take care of their health problems by using medicinal plants.

Materials and Methods

Plants growing in Meiktila area were collected and identified by using Flora of Ceylon. Medicinal uses were obtained by interviewing with 15 traditional practitioners. Semistructure interview method as described by Creswell (2004) was applied. 22 medicinal plants are being practically used for hypertension, diabetes and diarrhea by traditional practitioners. In comparison on the medicinal uses of 22 species, the use value (UV) was calculated by Phillips (1996) and an index of performance (*Ip*) was calculated by Batti (2004).

$$\sum u_i$$

(a) In Phillips (1996) method, $UV = \frac{\sum u_i}{n}$, UV = use value of a species,

u_i = the number of uses mentioned by each informant for a given species,

n = the total number of informants

(b) To illustrate performance index mentioned by Betti (2004),

C_1 = number of citations of specific species for specific ailment

C_2 = number of citations of specific species for all ailments

C_3 = total number of citations for specific ailment

C_4 = total number of citations for all ailments

$P_1 = C_1/C_2$, $P_2 = C_3/C_4$, $D = P_1 - P_2$

The difference (D) between the two proportions is then used to define a performance index (*Ip*).

(c) Discussion Record

Name - U Sein Maung

Address - Ah di ka Traditional Clinic, No. 54, Hospital Street, Pauk Chaung Quarter, Meiktila.

No.	Name of species	Disease treated	Parts used	Procedure	Side effects
1.	<i>Azadirachta indica</i> A. Juss. (Ta ma)	Diabetes	Leaves, Fruits	Administer orally as leaves powder	None
15.					

Results

22 plants belonging to 20 genera of 15 families found in the Meiktila area emphasizing on traditional medicinal uses and part used were presented in (Table 1).

Table 1. Medicinal uses and parts used of plants found in Meiktila

No.	Scientific Name	Myanmar Name	Part Used	Traditional medicinal uses
1.	<i>Acacia nilotica</i> (L.) Delile.	Su phyu	St	One teaspoon of the stem oil was taken for treating diarrhea.
2.	<i>Aloe vera</i> (L.) Burm.f.	Sha zaung let pet	R	The roots was roasted and eaten for treating diarrhea.
3.	<i>Alternanthera sessilis</i> (L.) R.Br.	Pa zun zar	L	The leaf salad or the fried leaf was taken for treating diarrhea.
4.	<i>Argemone Mexicana</i> L.	Kha ya	W	The decoction of the whole plant with honey was taken for treating hypertension.
5.	<i>Azadirachta indica</i> A. Juss	Ta mar	L, Fr	Tender leaves and ripe fruits are boiled and mixed with pickled tea leaves, garlic and salt weretaken for diabetes. The boiled leaves or the whole plant with jaggery was taken for diabetes.
6.	<i>Benincasa cerifera</i> Savi.	Kyauk hpa yon	Fr	The liquid of fruits ash was taken for treating diarrhea.
7.	<i>Butea monosperma</i> Lam.	Pauk	Fl, Re	The decoction of flowers and the resin with boiling water were taken for treating diarrhea. The decoction of flowers and the resin with boiling water was taken for treating diarrhea.
8.	<i>Catharanthus roseus</i> (L.) G.Don.	Thin baw ma nyo	W	The whole plants can be boiled with water and it was taken for treating diabetes.
9.	<i>Eupatorium odoratum</i> L.	Bi zat	L	The leaves are boiled into essence can be taken with hot water for treating hypertension.

10.	<i>Heliotropium indicum</i> L.	Sin namaung gyi	W	The decoction of the whole plant was used for treating diabetes.
11.	<i>Millingtonia hortensis</i> L.	Aegayit	L, R	The leaves can be made into salad and fried was taken for hypertension. The ground root powder was used for hypertension. The leaves decoction with lemon juice and honey was taken for treating hypertension.
12.	<i>Momordica charantia</i> L.	Kyet hin kha	W, L	The liquid or powder of whole plants and the decoction of leaves was taken for treating diabetes.
13.	<i>Morinda citrifolia</i> L.	Ye yo	L, Fr, R	The decoction of roots was taken for treating diabetes. The soup of leaves can be taken for diabetes. The ripped fruit with honey was taken for hypertension. The salad of leaves was also used for hypertension.
14.	<i>Moringa oleifera</i> Lam.	Dant tha lun	L, S, R,	The crushed leaf juice or the soup of leaves or the whole plants was taken for treating hypertension. The decoction of root and root powder was taken for hypertension. The seeds are grounded, soaked in water and it was taken for diabetes.
15.	<i>Phyllanthus emblica</i> L.	Zee phyu	Fr	The pounded fruit juice with lime juice was taken for treating diarrhea.
16.	<i>Phyllanthus urinaria</i> L.	Myay zee phyu	W	The whole plants are boiled with water can be taken to treat hypertension.
17.	<i>Plumeria acutifolia</i> L.	Ta yoke sa ga	B	The decoction of barks is mixed with lemon juice was taken for diabetes.
18.	<i>Senna siamea</i> (Lam.) Irwin & Barney.	Mezali	L, Fl	The decoction of the leaves and flowers was taken for diarrhea.
19.	<i>Senna surattensis</i> subsp. <i>glauca</i> (Brum.f)	Pyi pan nyo	L, B	The boiled leaves are made into a salad which can be eaten for diabetes. The barks and leaves soup can be taken for diarrhea.

20.	<i>Tamarindus indica</i> L.	Ma gyi	L, Fl, S	The dried leaves powder is mixed with jaggery, rock salt and was taken for treating diarrhea. The flowers mixed with jaggery were taken for diarrhea. The grounded seeds was taken for treating diarrhea.
21.	<i>Tribulus terrestris</i> L.	Su le	W	The decoction of the whole plant was taken for treating hypertension.
22.	<i>Wattakaka volubilis</i> (L.f) Hooker.	Khwe tauk	L	The fried leaves were used to treat diarrhea.

L=leaves, B=barks, Fr=fruits, Fl=flowers, S=seeds, R=roots, W=the whole plants, La=latex, St=stems, Re= resin.

Table 2. *Ip* and UV Rankson uses of 22 medicinal plants by Traditional Practitioners citations

No.	Scientific Name	Hypertension	Diabetes	Diarrhea	Total number of citations	Hypertension (<i>Ip</i>)	Diabetes (<i>Ip</i>)	Diarrhea (<i>Ip</i>)	UV Ranking
1.	<i>Acacia nilotica</i> (L.) Delile.			2	2	0	0	2	3 rd
2.	<i>Aloe vera</i> (L.) Burm.f.			11	11	0	0	2	2 nd
3.	<i>Alternanthera sessilis</i> (L.) R.Br.			5	5	0	0	2	3 rd
4.	<i>Argemone mexicana</i> L.	3			3	3	0	0	3 rd
5.	<i>Azadirachta indica</i> A. Juss		15		15	0	2	0	1 st
6.	<i>Benincasa cerifera</i> Savi.			5	5	0	0	2	3 rd
7.	<i>Butea monosperma</i> Lam.			10	10	0	0	2	2 nd
8.	<i>Catharanthus roseus</i> (L.) G.Don.		8	7	15	0	1	1	1 st
9.	<i>Eupatorium odoratum</i> L.	6			6	3	0	0	3 rd
10.	<i>Heliotropium indicum</i> L.		9		9	0	2	0	2 nd
11.	<i>Millingtonia hortensis</i> L.	8			8	3	0	0	2 nd
12.	<i>Momordica charantia</i> L.		14		14	0	2	0	2 nd
13.	<i>Morinda citrifolia</i> L.	13	12		25	1	1	0	1 st
14.	<i>Moringa oleifera</i> Lam.	15	12		27	1	1	0	1 st
15.	<i>Phyllanthus emblica</i> L.			8	8	0	0	2	2 nd
16.	<i>Phyllanthus urinaria</i> L.	3			3	3	0	0	3 rd

17.	<i>Plumeria acutifolia</i> L.		6		6	0	2	0	3 rd
18.	<i>Senna siamea</i> (Lam.) Irwin & Barney.			11	11	0	0	2	2 nd
19.	<i>Senna surattensis</i> subsp. <i>glauca</i> (Brum.f)		9		9	0	2	0	2 nd
20.	<i>Tamarindus indica</i> L.			12	12	0	0	2	2 nd
21.	<i>Tribulus terrestris</i> L.	7			7	3	0	0	3 rd
22.	<i>Wattakaka volubilis</i> (L.f) Hooker.			9	9	0	0	2	2 nd

Discussion and conclusion

The use value of the presented 22 species were calculated and categorized into 3 groups (1st, 2nd and 3rd ranking) by using the method of Phillips (1996). It was observed that the plants belonging to 1st ranking were the most useful in traditional medicine and the plants belonging to 3rd ranking were the least useful (Table 2).

In the 1st ranking plants, and *Azadirachta indica* A.Juss., *Catharanthus roseus* (L.) G.Don, *Morinda citrifolia* Lam. and *Moringa oleifera* Lam. showed the highest use value (UV=1,1,1.66,1.8) respectively. Most of the traditional practitioners used it more than other plants in treating hypertension, diabetes and diarrhea.

By the result of use value, it was observed that the species which showed the highest use value for two ailments (hypertension and diabetes) were *Morinda citrifolia* L. and *Moringa oleifera* Lam.

Altogether seven species were used to treat hypertension and out of which *Morinda citrifolia* L. and *Moringa oleifera* Lam. showed average performance ($I_p=1$). The rest five species, *Phyllanthus urinaria* L., *Millingtonia hortensis* L., *Eupatorium odoratum* L., *Tribulus terrestris* L. and *Argemone mexicana* L. showed very high performance ($I_p = 3$).

Eight species were used to treat diabetes. Among them, three species showed average performance ($I_p = 1$) and the rest five species were high performance ($I_p = 2$). According to the result of present study, it is not observed that there was not the most significant species to treat diabetes.

10 species were used to treat diarrhea. *Catharanthus roseus* (L.) G.Don. were average performance ($I_p = 1$) and the rest nine species were high performance ($I_p = 2$). $I_p = 3$ was not observed in treating diarrhea disease.

There is no unusable species in traditional medicine field because of its medicinal abilities and abundance (WHO, 2007). Thus according to the performance of traditional practitioners, it is assumed that the main reason why the parts used of medicinal plants obtained from Meiktila were more or less effective for 3 ailments as traditional medicine is that these medicinal plants were growing abundantly and could be collected easily in every season of the whole year.

Not only medicinal plants are available easily but also it saves money by using folk remedies. By recording the use value, it can be known easily that which medicinal plant is more advisable for each ailment. Therefore, it is expected that this result will provide the folk remedies knowledge concerning phytotherapy to low and middle income national public.

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Appendix I

Traditional practitioners interviewed by using semistructure questions method have been described with their addresses.

1. U Nyunt Maung - Ma gyi pin pu village, Meiktila (Tasa-34155)
2. Daw San Myint New - Kay tha yar zar Traditional Clinic, Meiktila (Tasa-923)
3. Daw Aye Aye Nwe - Swan Htet Traditional Clinic, Pauk Chaung Quarter, Meiktila (Tasa-05513)
4. U Sein Maung - Ah di ka Traditional Clinic, No.54, Hospita Street, Pauk Chaung (1), Meiktila (Tasa-669)
5. U Khin Mg Kyi - Wun Zin Quarter, Meiktila (Tasa-01758)
6. U Moe Win - Swan Htet Traditional Clinic, Pauk Chaung Quarter, Meiktila (Tasa-05554)
7. Daw San Sint Sint - Department of Traditional Medicinal, Meiktila (Tasa-760)
8. U Han Soe - Kay tha yar zar Traditional Clinic, Meiktila (Tasa-922)
9. Daw Aye Aye Maw - Zi za wa street, Pauk Chaung (1), Meiktila (Tasa-3444)
10. U Zaw Myint - Su Mon Traditional Clinic, Taw Ma village, Meiktila (Tasa- 2789)
11. Daw San San - Ta pa thi Traditional Clinic, Wun Zin Quarter, Meiktila (Tasa-1307)
12. Daw Cho Cho Hmwe - Department of Traditional Medicine, Meiktila (Tasa-4351)
13. Daw Thin Thin Htay - Department of Traditional Medicine, Meiktila (Tasa-4207)
14. Daw Thida Aye - Department of Traditional Medicine, Meiktila (Tasa-3186)
15. Daw Tin Tin Win - Pauk Chaung Quarter, Meiktila (Tasa-2727)