Traditional Medicinal Plants Used to Treat Maternal and Child Health Illnesses in Ethiopia: An Ethno-Botanical Approach

Asmare TW*, Yilkal BA1, Mekuannint T2 and Yibeltal AT4

1Department of Midwifery, College of Health Sciences, Debre Markos University, Debre Markos, Ethiopia
2Department of Biotechnology, Debre Markos University, Debre Markos, Ethiopia
3Department of Public Health, Debre Markos University, Debre Markos, Ethiopia
4Department of Medical Laboratory Sciences, Debre Markos University, Debre Markos, Ethiopia

Abstract

Maternal and child morbidity and mortality is highest in sub Saharan African countries including Ethiopia, due to shortfalls in modern health institutions, women improper use of medicinal plants. Scientific utilization of traditional medicinal plants continues to play an important role in improving and maintaining health problems in developing countries. About (80%) of the Ethiopia people depend on traditional medicine for their health care and more than 90% traditional medicine preparations are made from plant origin. The aim of this review was to provide an overview on traditional medicinal plants used to treat maternal and child health illnesses in Ethiopia.

Materials and Methods: Databases (Pub Med, Google Scholar, Research Gate, and HINARI) were searched for published studies on the Ethno-botany of medicinal plants used to treat maternal and child health illnesses in Ethiopia. Studies that did not contain full ethno-botanical data of medicinal plants traditionally used to treat maternal and child health illnesses were excluded.

Results: In different database search, the investigators found a total of 360 articles. After adjustment for duplicates and inclusion and exclusion criteria, 38 articles were found appropriate for the review. None of the medicinal plants traditionally used to treat maternal and child health illnesses in Ethiopia are confirmed scientifically. Of the 103 plants identified from the various studies, 25 (25.75%) were herbs and the common plant part used was found to be root 40 (41.2%) followed by leaves 32 (32.96%). Based on this study, medicinal plants the most common route of administration was orally 71 (73.13%). In this review, medicinal plants which were abundant for maternal illness the leading were treatment of retained placenta 24 (24.72%) species followed by abortion, which comprise 6 (6.18%). On the other hand, milk feeding diarrhoea and Kwashiorkor 3 (3.09%) comprise high and equal percentage of childhood infection in Ethiopia.

Conclusion: Various medicinal plants have been used by Ethiopian people. Most of the plants were herb and the commonly used plant part was root. The most common maternal illness treated by medicinal plant was retained placenta in children milk feeding diarrhoea and Kwashiorkor. There is a need to conduct clinical trials to support traditional claims and to analyse cellular and molecular mechanisms involved.

Keywords: Ethno botany; Ethiopia; Maternal health; Child health; Medicinal plants

Introduction

Based on WHO traditional medicine is defined as the sum total of all knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental, or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing. The emphasis on the use of medicinal plants had been focus on the treatment rather than prevention of diseases [1].

Maternal and child morbidity and mortality is highest in sub Saharan Africa including Ethiopia due to shortfalls in modern hospitals, women improperly use of medicinal plants About (80%) of the Ethiopia people and (90%) of livestock depend on traditional medicine for their health care and more than 90% of traditional medicine preparations are made from plant origin. Similarly, there has been a continuous growth of demand for traditional medicines globally and in many developing countries health care system [2].

But when we use in scientific way, traditional medicine continues to play an important role in improving and maintaining health in developing countries. High income and knowledge of medicinal plants are important determinants of use of traditional medicine. This challenges the common assumption that poor and marginalized people are most dependent on traditional medicine due to its availability [3].

Ethiopia is believed to be home for about 6,500 species of higher plants of which 12% are endemic [4] making the country among the most diverse floristic regions of the world [5]. However, conservation of these plants and knowledge of their use have generally been neglected since it was considered irrelevant in earlier times [6]. Moreover, the attitude of the society towards the traditional medicine healers was negative and this forced healers to keep the knowledge secret [7].

But currently different studies have been conducted on Ethno-botany of medicinal plants used to treat various human diseases in different parts of Ethiopia; Traditional medicine is commonly assumed to be a crucial health care option for poor households in the country. However, there has not been any review done that comprehensively expresses the Ethno-botany of plants used to treat maternal and child health illnesses. Therefore, there is a need to assess the overall

*Corresponding author: Asmare TW, Department of Midwifery, College of Health Sciences, Debre Markos University, Ethiopia, Tel: +251 -921524150; Fax: 251-058-771-16-64; Email: taleasmare@gmail.com

Received April 09, 2018; Accepted June 22, 2018; Published July 05, 2018

Citation: Asmare TW, Yilkal BA, Mekuannint T, Yibeltal AT (2018) Traditional Medicinal Plants Used to Treat Maternal and Child Health Illnesses in Ethiopia: An Ethno-Botanical Approach. J Tradit Med Clin Natur 7: 277. doi: 10.4172/2573-4555.1000277

Copyright: © 2018 Asmare TW, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
traditional preparation techniques and types of plants used in the country scientifically. So this review was aimed to provide an overview of Ethno-botany of medicinal plants used to treat maternal and childhood illnesses among the diversified population in Ethiopia. It gives a comprehensive information on the scientific name of plants, method of preparation, route of administration, plant part used and the habit of the plant used and the study will be an input for further study/call attention of other investigators on traditional medicine on the treatment of maternal and child diseases and increase quality of care on maternal and child health (MCH) service delivery system in Ethiopia.

Materials and Methods

Search strategy

Databases (Pub Med, Google Scholar, Research Gate, and HINARY) were searched for published studies done on Ethno-botany of medicinal plants in Ethiopia. Some studies were also identified through a manual Google search. No restriction was applied on the year of publication, methodology, or study subjects. Primary search terms were "maternal and child health review", "Ethiopia", "medicinal plants", and "Ethno botany".

Inclusion/exclusion criterion

Studies which do not contain full information about Ethno botany (method of preparation, growth form, plant part used, route of administration), surveys which did not address maternal and child health illness as a disease treated traditionally by practitioners were excluded. Plants which are out of flora list of Ethiopia were also excluded from this review.

Data abstraction

The authors screened the articles based on the inclusion/exclusion criteria. The details of medicinal plants were extracted from each study

| No | Scientific Family | Scientific Local | Habit Part(s) used | Specific use | Method(s) of preparation and Dosage | ROA | Reference |
|----|------------------|------------------|--------------------|--------------|-------------------------------------|-----|-----------|
| 1. | Justicia schimperiana (Hochst.ex Nees) T. Anders | Acanthaceae | n H R | Retained placenta | n | oral | [4] |
| 2. | Acacia nilotica (L.) | Fabaceae | N HA | oral, Nasal | [1] |
| 3. | Senna italica Mill | Fabaceae | n T S | Retained placenta | n | Oral | [1] |
| 4. | Ziziphus mauritiana Lam | Rhamnaceae | n CA L | Retained placenta | n | Oral | [1] |
| 5. | Ziziphus spina-christi (L.) Desf | Rhamnaceae | n H L | Retained placenta | n | Oral | [1] |
| 6. | Premna oligotricha Baker | Verbenaceae | n n L | Retained placenta | n | Oral | [1] |
| 7. | Hippocarpacea africana (Wild.) | Leaf | Aadeeguratii | To remove the blood after birth | Crushing | [1] |
| 8. | Sidaovata Forsk | n Baleenbulaa | H Root | To prevent Abortion | crushing, Powdering | Oral and dermal | [1] |
| 9. | Zehneria scabra [L.] | Cucurbitaceae | Aregesa (Haregresa) N | To induce labour | Boiled with water and steam inhaled | Inhalation | [5] |
| 10. | Cynoglossum coeruleum Hochst. ex A. DC | Boraginaceae | Mexene Tiro | Leaf | Kwashiorkor | Concocted with verbascum sinalicum | Orally | [6] |
| 11. | Verbascum sinaiticum Benth | Scrophulariaceae | Muka Ioni, Gura Haree | Sh | Kwashiorkor Ap | Concocted with Cynoglossum coeruleum | Orally | [6] |
| 12. | Ziziphus spina-christi (L.) Desf | Rhamnaceae | Kurkura T | Leaf | Hemorrhage | Crushed and bath the anal opening | Anal | [6] |
| 13. | Pousolzia parasitica (Forsk) | Urticaceae | Dirba HA | Root, Leaf | Infertility in female | Concoction taken to increase chance of fertility | Orally | [6] |
| 14. | Lagenaria sicaria (Molina) | Cucurbitaceae | Bugee CA | Leaf | Obstructed labour | Crushed and filtrate | [6] |
| 15. | Capsicum annuum L | Solanaceae | Berbere | Shrub Leaf | Infertility | small quantities of fruit chewed and swallowed once (small fruit once) | Orally | [7] |
| 16. | Anoigissus leiocarpa (A. DC.) | Combretacae | Sigga Hu | Stem bark | Retained placenta | Stem bark is crushed, diluted in water and one cup is taken (diluting) | Orally | [9] |
| 17. | Cassampeulos mucronata A Rich | Menispermaceae | Siyapewa Hu | Root | Children (Milk feeding) diarrhea | Root is crushed, squeezed with water and one cup of watery juice is given (crushing and squeezing) One cup | Orally | [9] |
| 18. | Combretum collinum Fresen. | Combretacae | Abasteya (hafa) HA | Fruit | Obstructed labour | Fruits are crushed, diluted in water and 1/2 cup is taken (diluting) | Orally | [8] |
| No. | Plant Name                      | Family          | Part Used       | Uses                                                                 | Preparation                                                                 | Route of Administration |
|-----|--------------------------------|-----------------|-----------------|----------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------|
| 19  | Combretum collinum Fresen.      | Combretaceae    | Abasteya (hafa) | Root Retained placenta                                               | Root is crushed, squeezed with water and one cup is taken (crushing & squeezing) | Orally [9]               |
| 20  | Cordia africana Lam.            | Boraginaceae    | Wanza           | Root bark Children (milk feeding) diarrhea                           | Root bark is crushed, squeezed with water and given to drink (crushing and squeezing) | Orally [9]               |
| 21  | Ficus sycomorus L               | Moraceae        | Fuga            | Root Root is crushed, soaked in water and one cup is taken           | Orally [9]                                                               |
| 22  | Grewa mollis A.Juss.            | Tiliaceae       | Gediya          | Stem bark Retained placenta                                          | Stem bark is soaked in water and one cup is taken (maceration)            | Orally [9]               |
| 23  | Kigelia africana (Lam.) Benth.  | Bignoniaceae    | Endehua         | Fruit Infertility in female                                          | Fruits are crushed, soaked in water and (maceration) one bottle taken in morning | Orally [9]               |
| 24  | Lonchorapaxlisxifolius Guill. &Perr. | Fabaceae       | Beewa           | Stem bark Infertility in female                                      | Stem bark is crushed, soaked in water, filtering one cup is drink          | Orally [9]               |
| 25  | Sorgum bicolor (L.) Moen.       | Poaceae         | Awut            | Seed Retained placenta                                               | Malt seeds are crushed with table salt, diluted one bottle is taken        | Orally [9]               |
| 26  | Trichodesema zeylanicum (Burn.f.) R.Br, | Boraginaceae      | Jgewusha        | Root Infertility in female                                          | Roots are crushed with garlic, boiled and (decoction) one cup is taken    | Orally [9]               |
| 27  | Ruta chalepesis L.              | polygonaceae    | Tult            | Umbilical cord laboring                                              | Tying fresh root around west                                                | [36]                     |
| 28  | Vernonia adoensis Sch.Bep. ex Wasp. | Asteraceae  | Else Mossa      | Root Menstrual disorder                                              | Root are chewed with honey                                                  | Orally [36]             |
| 29  | Ajuga integrifolia Buch.-Ham. ex D.Don | Lamia ceae      | Orsha           | Herb leaf Retained placenta                                          | n                                                                         | Orally [36]             |
| 30  | Bidens pilosa L.                | Asteraceae      | GURDAY          | Leaf/seed Retained placenta                                          | n                                                                         | Orally [8]              |
| 31  | Rumex nepalensis spring         | polygonaceae    | Germach         | Root Child diarrhea                                                  | n                                                                         | Orally [8]              |
| 32  | Colocasiaesculenta(L.)Schott    | Araceae         | Haleko          | To detach retained fetal membrane                                    | Root dried, ground and mixed with powdered root of Momordica spp. and all soaked in warm water and One cupful | Orally [8]               |
| 33  | SolanumacuminatumRuiz&Pav       | Solanaceae      | Raki            | Root To detach placenta                                              | Root chopped,mixed with cold water One cupful                               | Orally [8]               |
| 34  | Ximeniaamericanal.              | Olacaceae       | Hudhaa          | Menstruation disorder                                                | Crushed and mixed with water one cup of tea takenfort 1–5 days until the blood stop | Orally [37]             |
| 35  | Ximeniaamericanal.              | Olacaceae       | Hudhaa          | Contraceptive                                                       | Exudates drunk for five days 2cup per a day                                | Orally [37]             |
| 36  | AchyranthesasperaL.             | Amaranthaceae   | Telenji/qaytele | n Treatment of RH incompatibility                                   | The herbs are dried, chopped together and put in a cotton pouch to be hung around the pregnant woman's neck in the seventh month. When the baby is born it is taken off the mother and put on the baby thought. | Dermal [38]           |
| 37  | Datura stramonium L.            | Solanaceae      | mestenager      | Herb Seed Abortion                                                   | Half tea spoon of seeds are ground into powder, mixed with water half of cup is drink once | Orally [39]             |
| 38  | Gomphocarpus fruticosus (L.) Alton f. | Asclepiadaceae | Demaito bereka  | Herb Root Abortion                                                   | Chew the root and taken stat                                               | Oral [39]              |
| 39  | Linum usitatissimum L.          | Linaceae        | Entatie         | Shrub Seed Retained placenta                                         | Seeds roasted on iron sheet and grinding into powder, then cooked in the presence of honey taken for a month before delivery | Oral [39]              |
| No. | Plant Name                        | Family         | Tribe/Region | Part Used  | Disease treated            | Preparation Method                                                                 |
|-----|----------------------------------|----------------|--------------|------------|---------------------------|----------------------------------------------------------------------------------|
| 40  | Rumex nervosus Vahl.             | Polygonaceae   | Huhot Shrub  | Leaf       | Breast Cancer             | Leaves are crushed and paste applied on affected area                            |
| 41  | Solanum nigrum L.                | Solanaceae     | Alalemo Wezero Shrub | Leaf | PPH                       | Leaves are crushed and inserted into vagina                                       |
| 42  | Cucumis ficifolius A. Rich.      | Cucurbitaceae  | Ramboram, lomin bita Herb | Root | Abdominal cramp after delivery | Roots are chewed                                                                  |
| 43  | Aloe trichosantha A. Berger      | Aloaceae       | N N Leaf, stem | Breast infection | Oral, nasal, body wash | Oram, dermal                                                                     |
| 44  | Aloe trichosantha A. Berger      | Aloaceae       | N N Leaf, root Retained placenta | N     | Tying                     |                                                                                  |
| 45  | Aerva javanica (Burm.f.) Schulles | Amaranthaceae  | N n Leaf     | Breast infection | Nasal, body wash | Nasal, dermal                                                                  |
| 46  | Celosia polystachia (Forssk.) C.C. | Amaranthaceae  | N n Leaf | Breast cancer | n Oral, nasal, topical |                                                                                   |
| 47  | Calotropis procera (All.) Alt.f. | Asclepiadaceae | N n Leaf | Breast swelling | n                      |                                                                                   |
| 48  | Balanites aegyptiaca (van Tieghem) Blatter | Balanitaceae | N n Root | Infant sickness | n                      |                                                                                   |
| 49  | Balanites aegyptiaca (van Tieghem) Blatter | Balanitaceae | N n Leaf | Breast cancer | n                      |                                                                                   |
| 50  | Boscia coriacea Pax.             | Capparidaceae  | N n Root | Retained placenta | n                      |                                                                                   |
| 51  | Cadaba farinosa Forssk.          | Capparidaceae  | N n Leaf | Breast cancer | n |                                                                                  |
| 52  | Senna accidentalis[,]link         | Fabaceae       | Assenmeka H Root | Excessive menstruation | Fresh root powder with butter is taken a drink before breakfast for three days |                                                                                   |
| 53  | Sida schimperiana Hochst. ex A.Rich. | Malvaceae     | Tiffrina Shrub | Root | RH disease     | Crush ,filter & drink a cup of fluid                                               |
| 54  | Phytolacca dodendcandra Herit.   | Phytolaccaceae | Indod N Root | Abortion | Crush the root and mix with water and drink |                                                                                   |
| 55  | Pentas lanceolata(Forssk.) Defiers. | Rubiaceae | Jamto, doricharo, jamto Herb | Root | Retained placenta | not mentioned                                                                  |
| 56  | Amaranthus caudatus              | Combretaceae   | Akuba shukfa (Ku), Eshok mergem T leaf | Prolonged labour | Pounding, homogenize the powder with water and wash the vagina thoroughly or apply a half cup of solution nasally |                                                                                   |
| 57  | Acalypha fruticosa               | Euphorbiaceae  | Timigidda (Ku) T Leaf | Excess menstruation | Add the leaf into fire and expose the vagina to smoke |                                                                                   |
| 58  | Ageratum conyoides               | Asteraceae     | Gugisha (Ku) H Root | Reduce pain during labour |                                                                                   |
| 59  | Entada abyssinica                | Fabaceae       | Sesenaffa (ku) T Root | Treat children diarrhea | Pounding the root and drink a bottle of the juice in the morning |                                                                                   |
| 60  | Nigella sativa                   | Ranunculaceae  | Tselim Aweseda (Tig) H Stem | Children abdominal pain | Adding the seed into boiled water, add small amount of sugar to the decoction, cool and drink a tea spoon of the solution during pain |                                                                                   |
| 61  | Pentatropis nivalis              | Asclepiadaceae | Amenmeka(ku) H Root | Rx loss of appetite in children | Pounding the root drink a tea spoon of the juice in the morning |                                                                                   |
| 62  | Pterolobium stellatum            | Fabaceae       | Kuka (Ku) Sh Root | Retained placenta | Pounding the root, mix with water and drink a bottle cup of it in the morning |                                                                                   |
| 63  | Rhamnus prinoides                | Rhamnaceae     | Gesho (Tig) T Leaf | Fever in children | Adding the leaf in to water, stay for a while and give the drop of this Concoction to the child |                                                                                   |
| 64  | Ipomoea obscura (L.) Ker-Gawl     | Convolvulaceae | N Herb | Malnutrition in Child &Diarrhea | N |                                                                                   |
| 65  | Indigofera zavattarii Chiov.     | Fabaceae       | Kechine T Root | Rh factor |                                                                                   |
| 66  | Phytolocca dodecandra            | Phytolaccaceae | n CA Root | Abortion | Root of Indod and seed of Gomen |                                                                                   |
67. *Cynoglossum lanceolatum* Forssk. Boraginaceae N Herb Root Mastitis Chopped root or crushed and dried root mixed with butter Topical [47]

68. *Solanum anguivi* Lam. Solanaceae n Shrub Root Mastitis Dried and crushed leaves mixed with butter Topical [47]

69. *Periploca linearifolia* Quat. Dill. & A. Rich. Asclepiadaceae n Climber Leaf Mastitis Crushed leaves mixed with water and then applied Topical [47]

70. *Dodonaea angustifolia* L. f. Sapindaceae Eticha Shrub Leaf Retained placenta & Chopped leaves mixed with water and filtered Oral [47]

71. *Urella Philodendron* (A. Rich.) Wedd. Urticaceae n Shrub Leaf Retained placenta Chopped Leaves and mixed with water Oral [47]

72. *Cucumis ficifolius* Cucurbitaceae Yemidir Embuay Climber Root Infertility in women Juice Oral [48]

73. *Achyranthes aspera* Amaranthaceae Telenji Herb Stem Retained placenta Juice with water Oral [48]

74. *Withania somnifera* n n n n Root Refusing to give milk the child by mother Washing the breast with this dilute Dermal [49]

75. *Phytikacca Dodecandra* n n n n Fruit, stem, flower Abortion, STDs n Oral [50]

76. *Ureta hypselodendron* Urticaceae Hajjaa Li Leaf Retained placenta Chopping the leaves, making solution, adding magado salt and giving one liter orally at once Oral [12]

77. *Aloe Vera L.* Aloeaceae Ret H Root Rh disease Crushed and mixed with butter, then eating in three month interval during pregnancy Oral [51]

78. *Calpurnia aurea* (Alton) Berth. Fabaceae Cheketa S Leaf Mastitis n [52]

79. *Ekebergia capensis* Sparrm. Meliaceae Olonchoo T B Weight loss in children n [52]

80. *Olea europaea subsp. cuspidata* (Wall. ex G.Don.) Cif. Oleaceae Ejersu T B Kwashiorkor n [52]

81. *Artemisia absinthium* Asteraceae Naatiuruwa Herb All parts Retained placenta crushed and mixed/ concocted with butter and taken Oral [53]

82. *Brucea antidysentrica* J.F.mill Solanaceae Shureshuupiya Tree Root Parasitic disease in children crushed and taken Oral [53]

83. *Stephenia abyssinica* Menispermaceae Bazo tura/Ado tura Climber Root Stomach ache in children crushed, decocted and mixed with fresh Oral [53]

84. *Impatients tinctoria* n n Ensomisla n Root Abortion The roots are chopped, crushed, mixed with water and drunk once or twice. For arthritis (Rih) the roots are chopped, boiled, crushed and drunk. Oral [54]

85. *Achyranthes aspera* n N H Root Hemorrhage at birth Pounded and squeezed leaf is filtered with water to be drunk in a half size of water cup Oral [55]

86. *Asparagusafricanus* n N Hi Root Rh disease It is pounded with the root of other species like A.pulcherrima Oral [55]

87. *Impatients tinctoria* n n Ensomisla n Root Hemorrhage at birth It is crushed with the leaf of Solanum and applied as cream on the vagina Vaginal [55]

88. *Blepharis edulis* (Forssk.) Pers. Acanthaceae Harar H Leaf Tiredness during labour Hanging on the ceiling of the house to avoid exhaustion during labour Hanging on roof [56]

89. *Leucas neuffizeana* CDifforn Lamiaceae Hebrud H Leaf Infertility in women fresh leaves crushed and squeezed with water and orally taken Oral [56]
using an abstraction forms: Scientific, Family and Local name, habit of plant, plant part used, methods of preparation, specific use and route of administration (Table 1).

Results
Literature search results

The search of the Pub Med, Google Scholar, Research Gate, and HINARY databases and Google provided a total of 350 studies. After adjustment for duplicates, 105 remained. Of these, 40 studies were discarded, since after review of their titles and abstracts, they did not meet the criteria. The full texts of the 66 studies were reviewed in detail. Finally, 38 studies were included in the review (Figure 1).

Study characteristics

Methodological validity of all the reviewed articles were checked prior to inclusion in the review by undertaking critical appraisal using a standardized instrument adapted from [8]. These studies differed significantly in the number of plants identified. From these 38 articles, almost all were conducted to assess the Ethno-botany of medicinal plants used to treat human diseases. All the studies were conducted in different parts of Ethiopia and are qualitative and mixed type. The studies used purposive sampling to select study articles. The detailed description of each plants collected from different studies is given below (Table 1).

Method of preparation and route of administration

Traditional medicinal practioners in Ethiopia apply different techniques of preparation like drying, crushing, concoction, decoction and eating with some other plants or animal products (Table 1). They use simple methods and equipments during their remedy preparation. Of the routes commonly used to administer remedies in the treatment of maternal and child health illnesses, oral route was the common route which consists 71 (73.13%) followed by dermal 6 (6.18%) way of administration. About 6% of the medicinal plants among 103 reviewed articles, the rout of administration is not specified (Figure 2).

Maternal and child health illnesses treated by traditional medicinal plants

In this study, the investigators were intended to deal both maternal and child health disease treatments of traditional medicinal plants.
Based on the information reviewed on published research results, medicinal plants which were abundant for the treatment of retained placenta 24 (24.72%) species followed by treatment of abortion, infertility in women, Menstrual disorder and treatment of Rh disease which comprise the same 6 (6.18%) plant species (Table 2).

Habits of medicinal plants which treat maternal and child illness

In this review paper shows that the most widely used Medicinal plants habit in the reviewed articles the collected plants found to be herbs 25 (25.75%) followed by shrubs 19 (19.57%) (Figure 3).

Plant parts used in the reviewed articles

Every part of different plant species are used against a variety of diseases. In this review the commonly used plant parts were found to be root 40 (41.2%) followed by leaves 32 (32.96%), and stem bark 4 (4.12%) respectively. Among 103 reviewed medicinal plants about 7 (7.21%) were not identified their parts used for the case mentioned. In some cases, more than one organ of the same plant species, particularly a combination of parts, is used in the preparation of different therapies.

Diversity of medicinal plants in terms of families

In this paper review different families of medicinal plants were collected from published research articles. Among them Fabaceae is the most dominant family that holds 8 (8.24%) plant species followed by Solanaceae having 6 (6.18%) species and Cucurbitaceae having 6 (6.18%) plant species. From the documented medicinal plants 7 (6.79%) plant species at which their family was not clearly stated in the reviewed papers (Table 3).

Based on this systematic review, there is plant species used for food and drink purpose in addition to traditional treatment of maternal and child illnesses. Solanaceae, Berbere (local name) [7], Boraginaceae Wanza (local name) [9], Phytolaccaeeae Indod (local name) [10] Rhamnaceae, Gesho (local name) [11] Aloeaceae, Ret (local name) [12].

Discussion

This review indicated that about 103 plant species find applications by the traditional medicinal practitioners of Ethiopia to treat maternal and child health illnesses. Of the plants used traditionally, none of them were proven scientifically which shows the less attention given to the problem and the traditional practitioners in general. According to this review there is high species diversity of medicinal plants used which may be due to the climate variation that exists with the different parts of Ethiopia. In this study based on diversity of medicinal plants, Fabaceae is the most dominant family that holds 8 (8.24%) plant species followed by Solanaceae having 6 (6.18%). Similarly, a study done in Nigeria 22.5% [13], Afar [4], Harare regional State [14], Fiche Town [15], southern region, Konta [15], four districts of Jimma Zone 625% [16], Dire Dawa (8.5%) [17], Benishangul Gumuz (8.3%) [9] and Chifra District, Afar Region15% [18], evidenced this.

Table 2: Maternal and child health illnesses diseases treated by traditional medicinal plants in Ethiopia.

| No | Disease Treated                        | Number | %   |
|----|----------------------------------------|--------|-----|
| 1  | Retained Placenta                      | 24     | 24.72|
| 2  | Prevent Abortion                       | 6      | 6.18 |
| 3  | To induce Labour                       | 1      | 1.03 |
| 4  | To remove blood after birth            | 1      | 1.03 |
| 5  | Infertility in Women                   | 6      | 6.18 |
| 6  | Child milk feed diarrhea               | 3      | 3.09 |
| 7  | Obscured labour                        | 1      | 1.03 |
| 8  | Umbilical cord                         | 1      | 1.03 |
| 9  | Menstrual Disorder                     | 6      | 6.18 |
| 10 | Contraceptive                          | 2      | 2.06 |
| 11 | To treat Rh incompatibility            | 6      | 6.18 |
| 12 | To detach placental Fetal membrane     | 1      | 1.03 |
| 13 | Breast cancer                          | 5      | 5.15 |
| 14 | Abdominal crump after delivery         | 1      | 1.03 |
| 15 | Breast infection                       | 2      | 2.06 |
| 16 | Breast swelling                        | 1      | 1.03 |
| 17 | Infant sickness                        | 1      | 1.03 |
| 18 | Prolonged labour                       | 1      | 1.03 |
| 19 | Reduced contraction during labour      | 1      | 1.03 |
| 20 | Malnutrition and Diarrhea in children  | 1      | 1.03 |
| 21 | Mastitis                               | 4      | 4.12 |
| 22 | Refusing lactation by the mother       | 1      | 1.03 |
| 23 | Fever in child                         | 1      | 1.03 |
| 24 | Abortion/STDS                          | 1      | 1.03 |
| 25 | Weight loss by child                   | 1      | 1.03 |
| 26 | Parasitic disease in child             | 1      | 1.03 |
| 27 | Stomachache in child                   | 1      | 1.03 |
| 28 | Hemorrhage at birth                    | 3      | 3.09 |
| 29 | Tiredness during labour                | 1      | 1.03 |
| 30 | Infertility/Rh disease                 | 6      | 6.18 |
| 31 | Disease of the uterus                  | 1      | 1.03 |
| 32 | PPH                                    | 1      | 1.03 |
| 33 | Kwashiorkor                            | 3      | 3.09 |
| 34 | Total                                  | 103    | 100  |
In this review, the commonly used plant part was found to be root 41.2%. Similarly the study conducted in Tanzania [19], Bale zone (35.71%) [20], South Omo (40%) [8], Benishangul Gumuz (39%) [9], Shewa Zone, ‘Boo sat’ sub-district 38% (48) and Chilga District 89% [12] dominant plant part used by traditional healers. On the other hand leaf is the most plant part used by traditional healers in the studies conducted in 57.2% Harari regional state (48%) [4,14] Afar 52% (14), Fiche Town (34.68%) [21], Tehuledere district, South Wollo (50%) [22], in Dire Dawa (29.4 %) [19], Gamo Gofa (44%) [23], Mirab-Badwacho district (41%) [24], Nekemt town 35% [25] and Alma-Ata, Southern Tigray 52% [26].The reason for this difference is might be due to knowledge (awareness) of traditional healers, geographical difference, and availability of plant parts in the area.

Based on this study, the most widely used medicinal plants growth forms harvested in the reviewed articles found to be herbs (26%). This result is similar with the study conducted in Uganda 51.9% [27], Nigeria (68.5%) [16], Uganda 80% (55), Delanta 52.6% [28], Guzman District 51% [29], Hadiya zone 52% [30], Jimma 84% and Tehuledere district, South Wollo (48%) [31] herbs were dominantly used. Whereas shrub had highest dominancy in studies conducted Shewa Zone, ‘Boo sat’ sub-district 46% [19], Abaya district, Borena Zone 48.8% [22] and Dasa forest, Tigray 48.8% [32] and study in South Omo trees 29% [8] highly used. The reason for this difference is it might be due to the plant species exhibit high level of abundance and easy to access them. This review revealed that, most commonly route of administration is internal particularly oral that accounted for 71%.This was similar with the studies conducted in Nigeria (84.6) [33] Mexico 26% [34] and Uganda 100% [35].

Conclusions and Recommendations

Conclusions

The plant parts used for treatment of maternal health and child illness in this review was found to be root followed by leaves and it was unlike with other ethno-botanical studies which were leaf was the dominant plant part used and the common rout of administration was through orals. Most of the medicinal plants in this review were herb. The most common maternal illness treated by medicinal plant was retained placenta and whereas in children milk feeding diarrhoea and Kwashiorkor.

Recommendations

From this review the authors suggested to carry out similar studies in areas not previously covered in order to get a full picture of the country’s medicinal plants potential for a particular disease like maternal illness. There is a need to conduct clinical trials to support traditional claims and to analyse cellular and molecular mechanisms involved.

Table 3: Diversity of medicinal plants in terms of families used for the treatment of maternal and child health diseases in Ethiopia.
There should be photochemical analysis in order to determine the bioactive component which could heal the disease.

The combination effect of traditional medicinal plants (pooled effect of medicinal plants) on maternity health and other health problems should be studied. In this review, some papers were incomplete so for those authors it is better to incorporate some family names, local names, etc. for better work.

Declarations

Ethical approval and consent to participate
Not applicable

Consent for publication
Not applicable

Availability of data and material
No additional data are required; all information is clearly stated in the main manuscript.

Competing interests
The authors have declared that there is no competing interest.

Funding
No funding was obtained for this study.

References
1. Sotowora A, Ogundibode E, Oreayade A (2013) The Role And Place Of Medicinal Plants In The Strategies For Disease Prevention. Afr J Tradit Complement Altern Med 10: 210-229.
2. Malwichi-Nyirenda CP, Malwichi LL (2010) Medicinal plants used for contraception and pregnancy-related cases in Malawi: A case study of Mulanje District. J Med Plant Res 4: 3024-3030.
3. Thorsen RS, Pouliot M (2016) Traditional medicine for the rich and knowledgeable: challenging assumptions about treatment-seeking behaviour in rural and peri-urban Nepal. Health Policy and Plan 31: 314-324.
4. Teklehaymanot T (2017) An ethnobotanical survey of medicinal and edible plants of Yalo Woreda in Afar regional state. J Ethnobiol Ethnomed 13: 40.
5. Birhanu Z, Endale A, Shewamene Z (2015) An ethnomedicinal investigation of plants used by traditional healers of Gondar town, North-Western Ethiopia. J Med Plants Stud 3: 36-43.
6. Belayneh A, Bussa NF (2014) Ethnomedicinal plants used to treat human ailments in the prehistoric site of Harla and Dengego valleys, eastern Ethiopia. J Ethnobiol Ethnomed 10: 18.
7. Wubetu M, Abula T, Dejenu G (2017) Ethnopharmacologic survey of medicinal plants used to treat human diseases by traditional medical practitioners in Dega Damot district, Amhara, Northwestern Ethiopia. BMC res notes 10: 157.
8. Tolossa K, Debela E, Alhansadiou S, Toler A, Ganga G, et al. (2013) Ethnopharmacological study of plants used for treatment of human and livestock ailments by traditional healers in South Omo, Southern Ethiopia. J Ethnobiol Ethnomed 9: 32.
9. Mengesha GG (2016) Ethnobotanical survey of medicinal plants used in treating human and livestock health problems in Mandura Woreda of Benishangul Gumuz, Ethiopia. Adv Med Plant Res 4: 11-26.
10. Getaneh S, Sirma Z (2014) An ethnobotanical study of medicinal plants in Debre Libanos Wereda, Central Ethiopia. Afr J Plant Sci 8: 366-379.
11. Gidey M, Beyene T, Signorini MA, Bruschi P, Yirga G (2015) Traditional medicinal plants used by Kunama ethnic group in Northern Ethiopia. J Med Plants Res 9: 494-509.
12. Mekuanint T, Zebene A, Solomon Z (2015) Ethnobotanical study of medicinal plants in Chilga district, Northwestern Ethiopia. J Nat Med 15: 88-112.
13. Olonnnissola O, Adetutu A, Balogun E, Afolayan A (2013) Ethnobotanical survey of medicinal plants used in the treatment of malaria in Ogbomoso, Southwest Nigeria. J ethnompharmacol 150: 71-78.
14. Fenetahun Y, Eshetu G, Woruk A, Abdella T (2017) A survey on medicinal plants used by traditional healers in Harari regional State, East Africa. J Ethnopharmacol 5: 85-90.
15. Bekalo TH, Woodmatas SD, Woldemariam ZA (2009) An ethnobotanical study of medicinal plants used by local people in the lowlands of Konda Special Woreda, southern nations, and peoples regional state, Ethiopia. J Ethnobiology Ethnomed 5: 26.
16. Yigezu Y, Haile DB, Ayan WY (2014) Ethnoveterinary medicines in four districts of Jimma zone, Ethiopia: cross sectional survey for plant species and mode of use. BMC vet res 10: 76.
17. Kebede A, Ayalew S, Mesfin A, Mulalem G (2017) Assessment on the Use, Knowledge and Conservation of Medicinal Plants in Selected Kebeles of Dire Dawa Administration, Eastern Ethiopia. J Ethnopharmacol 5: 56-64.
18. Seifu T, Asres G, Gebre-Mariam T (2006) Ethnobotanical and ethnopharmacological studies on medicinal plants of Chifra district, Afar region, North-Eastern Ethiopia. Ethn Pharm 25: 41-58.
19. Hunde D, Asfaw Z, Kelbessa E (2006) Use of traditional medicinal plants by people of ‘Boosat’ subdistrict, Central Eastern Ethiopia. Ethiop J Health Sci.
20. Birhanu A, Haji F (2017) Ethnobotanical Study of Medicinal Plants Used For the Treatment of Human and Livestock Aliments in Dawe Kachen District of Bale Zone, Southeast Ethiopia. Int J Emerging Trends in Sci Technol 4: 5043-5055.
21. Kebebew M (2016) Knowledge of medicinal plants used in and around Fincha’ a Town, Western Ethiopia. J Pharmacogn Phytochem 5: 110.
22. Seid MA, Tsseay BA (2011) Ethnobotanical survey of traditional medicinal plants in Tehuledere district, South Wollo, Ethiopia. J Med Plant Res 5: 6233-6242.
23. Seid MA, Aydaganehum SG (2013) Medicinal plants biodiversity and local Healthcare management system in Chencha District; Gamo Gofa, Ethiopia. J Pharmacogn and Phytochem 2: 284-293.
24. Temam T, Dillo A (2016) Ethnobotanical study of medicinal plants of Mirab-Badawacho district, Ethiopia. J BioSci Biotechnol 5: 151-158.
25. Suleman S, Alenu T (2012) A survey on utilization of ethnomedicinal plants in Nekemte town, East Wellega (Oromia), Ethiopia. J herbs, spices med plant 18: 34-57.
26. Yirga G (2010) Ethnobotanical study of medicinal plants in and around Alamata, Southern Tigray, Northern Ethiopia. Curr Res J Biol Sci 2: 338-344.
27. Kamatenesi-Mugisha M, Oryen-Origa H (2007) Medicinal plants used in some gynaecological morbidity ailments in western Uganda. Afr J Ecol 45: 34-40.
28. Meragiaw M, Asfaw Z, Aragw M (2016) The status of ethnobotanical knowledge of medicinal plants and the impacts of resettlement in Delanta, northwestern Wello, northern Ethiopia. Evid Based Complement Altern Med.
29. Retta H, Asfaw Z, Kelbessa E (2015) Contribution of traditional farmers for medicinal plant conservation on the farming site in Gozamin District, Amhara Region, Ethiopia. Int J Life Sci 4: 24-35.
30. Tumoro G, Maray M (2016) Determination of informant consensus factor and fidelity level of ethnomedicinal plants used in Misha Woreda, Hadiya Zone, Southern Ethiopia. Int J Biodivers and Conser 8: 351-364.
31. Tadesse M, Hunde D, Getachew Y (2005) Survey of medicinal plants used to treat human diseases in the farming site in Gozamin District, Amhara Region, Ethiopia. Int J Life Sci 4: 24-35.
32. Giday K, Lenaerts L, Gebrehiwot K, Yirga G, Verbist B, et al. (2016) Ethnobotanical study of medicinal plants from degraded dry afromontane forest in northern Ethiopia: species, uses and conservation challenges. J Herb Med 6: 96-104.
33. Kankara SS, Ibrahim MH, Mustafa M, Go R (2015) Ethnobotanical study of medicinal plants used for traditional maternal healthcare in Katama region, Nigeria. S Afr J Bot 97: 165-175.
34. Gomez-Martinez R, Tlacuilo-Parra A, Garibaldi-Covarrubias R (2007) Use of herbal medicines sold by vendors in Merkato, Addis Ababa: Aspects of their utilization, trade, and changes between 1973 and 2014. Ethiop J Health Dev.
36. Giday M, Asfaw Z, Woldu Z, Teklehaymanot T (2009) Medicinal plant knowledge of the Bench ethnic group of Ethiopia: an ethnobotanical investigation. J Ethnobiol Ethnomed 5: 34.

37. Megersa M, Asfaw Z, Kelbessa E, Beyene A, Woldeab B (2013) An ethnobotanical study of medicinal plants in Wayu Tuka district, east Welega zone of oromia regional state, West Ethiopia. J Ethnobiol Ethnomed. 9: 68.

38. d’Avigdor E, Wohlmuth H, Asfaw Z, Awas T (2014) The current status of knowledge of herbal medicine and medicinal plants in Fiche, Ethiopia. J Ethnobiol Ethnomed 10: 38.

39. Araya S, Abera B, Giday M (2015) Study of plants traditionally used in public and animal health management in Sehatari Samre District, Southern Tigray, Ethiopia. J Ethnobiol Ethnomed 11: 22.

40. Mesfin F, Demissew T, Teklehaymanot T (2009) An ethnobotanical study of medicinal plants in Wonago Woreda, SNNPR, Ethiopia. J Ethnobiol Ethnomed 5: 28.

41. Teklay A, Abera B, Giday M (2013) An ethnobotanical study of medicinal plants used in Kille Awulaelo District, Tigray Region of Ethiopia. J Ethnobiol Ethnomed 9: 65.

42. Giday M, Asfaw Z, Woldu Z (2010) Ethnomedical study of plants used by Sheko ethnic group of Ethiopia. J Ethnopharmacol 132: 75-85.

43. Kidane B, van Andel T, van der Maesen LJG, Asfaw Z (2014) Use and management of traditional medicinal plants by Maale and Ari ethnic communities in southern Ethiopia. J Ethnobiol Ethnomed 10: 46.

44. Enyew A, Asfaw Z, Kelbessa E, Nagappan R (2014) Ethnobotanical study of traditional medicinal plants in and around Fiche District, Central Ethiopia. Curr Res J Biol Sci 6: 154-167.

45. Gabriel T, Guji T (2014) Ethnopharmacological survey of medicinal plants in Agaro district, Jimma zone, South West Ethiopia. Int J Pharm Sci Res. 3551: 3559.

46. Fenetahun Y, Eshetu G (2017) A review on ethnobotanical studies of medicinal plants use by agro-pastoral communities in, Ethiopia. J Med Plant Res 5: 33-44.

47. Getnet Z, Chandryodam S, Masresha G (2016) Studies on traditional medicinal plants in Ambagiorgis area of Wogera District, Amhara Regional State, Ethiopia. Int J Pure App Biosci 4: 38-45.

48. Beche D, Gebeyehu G, Feyisa K (2016) Indigenous utilization and management of useful plants in and around Awash National Park, Ethiopia. J Plant Biol Soil Health 3: 12.

49. Wabe NT, Mohammed MA, Raju NJ (2011) An ethnobotanical survey of medicinal plants in the Southeast Ethiopia. J Tradit Med Clin Natur 7: 277. doi: 10.4172/2573-4555.1000277