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Review Ariticle

Review of Phytochemical Analysis of Selected Traditional Medicinal Plants in Ethiopia

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Abstract: The aim of this review is to identify which types of selected medicinal plants for phytochemical characteristics were analyzed and which one is not analyzed as Ethiopian levels. In this review, the most traditional medicinal plant species found and used in Ethiopia are chosen. The state of the phytochemical characteristics of selected medicinal plants was stated under the literature. The qualitative phytochemical characteristics, some of which are the most important phytochemicals such as Tannins, Alkaloids, Saponins, Cardiac Glycosides, Steroids, Terpenoids, Flavonoids, Phlobatannins, Anthraquinones, and Reducing Sugars are studied by researcher. Most studies reviled that some phytochemical properties present in some medicinal plants while some of phytochemical properties are absent in some medicinal plants as well as the phytochemical properties of some species were studied like Opuntia ficusindica (L.) Miller (Yebereha Kulkual), Eucalyptus globules Labill (Nech Bahir Zaf), Cordia Africana Lam. (Wanza), Foeniculum vulgare. (Ensilal). However, some most important phytochemical properties of medicinal plants like Barleria eranthemoides R. Br. Ex C. B. Cl. (Yesetaf), Premna schimperi Engl. (Chocho), Capparis tomentosa L. (Gumero), Tragia pungens (Forssk.) Mull. Arg. (Ablalit) and Cymbopogonsp. (Serdo), Tribulus terrestris L. (Kurinchit) are not studied in Ethiopia. This review has shown that traditional medicinal plants those phytochemical properties are not studied have various medicinal purpose like treating mastitis, preventing boils, Haemorrhoids, congestion, headache, hepatitis, liver, vertigo, stomatitis, kidneys, liver, and vision for treating anemia, hemorrhoid coughs, fluxes, and stomatitis in most animals and human beings. So that identifying the plants based on the investigation and analysis of phytochemical properties of such plant species are more important as Ethiopian levels.

Keywords: Medicinal Plants, Phytochemicals, Bioactive Compounds, Traditional Medicines, Ethiopian Levels

1. Introduction

From the various plant species, medicinal plants have very vital in medication purpose, drug development and economical services. Medicinal plants are used to treating and diagnose the disease and infection. From ancient times, plants have been rich sources of effective and safe medicines [1]. The main phytochemical components, present in medicinal plants are Tannins, Alkaloids, Saponins, Cardiac Glycosides, Steroids, Terpenoids, Flavonoids, Phlobatannins, Anthraquinones, and Reducing Sugars. As proposed by WHO, the primary health care of most population of developing countries depend on the traditional medicines and mostly natural plant products [2]. Like worldwide countries, populations of Ethiopia use the traditional medicines in both rural and urban area (3). Traditional practice and activities have a long history in many areas in Ethiopia and it will continue to give useful and applicable tools for treating disease.

According to World Health Organization, traditional medicine (TM) is the total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures and nations. It is used in the maintenance of health, prevention, diagnosis, or treatment of disorders. Traditional medicine is popular in the developing world and its use is rapidly spreading in the developed nations [4]. Different traditional medicinal plant species studied by different researchers in the world and in the Ethiopian. Ethiopia comprises people with many languages, cultures, and beliefs. This makes for a rich and diverse knowledge and practice of traditional medicine, including herbal

remedies [3]. There are different literature reviews which investigated and studied the Ethnobotanical and Ethnopharmacological evidences of some Ethiopian medicinal plants traditionally used for the Treatment of Cancer, skin problem, leprosy, and external parasites, Evil eye and wound treatment in the Ethiopia. However, there is no report that could show phytochemical composition and its expanded pharmacological application in folk medicine of some traditional medicinal plants in the country of Ethiopia. Moreover, this knowledge of identifications of studied and unstudied phytochemical composition of medicinal plants in Ethiopia can serve as the baseline data for researcher and analyzer for the further study of traditional medicinal plants in Ethiopia.

2. Materials and Methods

In this review, the data and information on the traditional medicinal plants in Ethiopia were collected from the preferred documents (published paper) which are available in the online in different form such as books, published article and researcher reports. Different online sources such as Google Scholar and gray literature was the source of published articles by browsed the different words or terms like medicinal plants and Ethiopian traditional plants, articles that collected from the online sources were published from the January 2006 to the June 2020 on the traditional medicinal plants in the Ethiopia and some samples are collected from the December 2011 to the December 2014. For this review, scientific name, family name and local name also obtained from the published articles that obtained from the online and the data are shown in the form of Table.

There are various traditional medicinal plants used to treat different illness and disease in the Ethiopia which did not describe plants species by scientific names; and review articles, are excluded. In this review paper, almost a total of 30 plant species that recognized and grown in Ethiopia are documented. From those plant species, the phytochemical composition of some plant species are studied by a researcher and some are not studied. The most important components of the medicinal plant were isolated by the extraction methods by using the right solvent. Each researcher in the published articles in this review, different methods of extraction such as ethanol, methanol, chloroform, acetone, hexane, petroleum ether, ethyl acetate and aqueous (water) were used to the phytochemical composition of plant species.

Outcomes: The main outcomes of this review were to collect and summarize the information about the medicinal plant and to classify the plants based on the studies of their phytochemical composition as well as this provides information for the research community to conduct further scientific investigations in the Ethiopia medicinal plants.

3. Results and Discussion

3.1. Phytochemical Analysis

Traditional medicine plays a significant role in the healthcare of the people in developing countries, including Ethiopia, and medicinal plants provide valuable contribution to this practice [5]. In this review, around 30 medicinal plants species identified from the published articles and the literature reviews mentioned the different parts of the plant such as root, leaves, and fruit in which these different parts have many traditional values, pharmacological uses, and phytochemical constituents. From few medication values of plant parts, to treat rheumatism, madness, snakebite, chest pain, jaundice chest pain, malaria, headache, coughs etc. All the medicinal plants are shown in the Table form with the scientific name, families, local name and growth forms. Most plants were reported and investigated from Amhara, Oromia, SNNP and Tigray region. As the reported by many authors [6-12], some medicinal plants with their scientific name, family, local name and their habitat are shown in Table 1 and these plant species listed this review were often used by the people in the Ethiopia.

Table 1. *List of reviewed Ethiopian medicinal plants with their scientific name, family, local name and habitat.*

Scientific name	Family	Local name	Habitat
Aloe pulcherrima	Aloaceae	Eret	Steep bare mountain slopes [6]
Brucea antidysenterica J. F. Mill.	Simaroubiaceae	Abalo	Mountain and in green forest margins
Premna schimperi Engl.	Lamiaceae	Chocho	Degraded and secondary forests, grassy meadows and along paths in forests [6]
Calotropis procera (Ait.) Ait. f.	Asclepiadaceae	Qimbo	Wild
Capparis tomentosaLam.	Capparidaceae	Gumoro	Wild
Cybopogonsp.	Poaceae	Serdo	Wild
Lepidiums ativumL.	Brassicaceae	Fetto	Wild
Otostegia integrifoliaBenth.	Lamiaceae	Tinjut	Wild
Phytolacca dodecandraL'H´erit.	Phytolaccaceae	Endod	Wild
Rumex abyssinicusJacq.	Polygonaceae	Meqmoko	Wild
Vernonia amygdalina Del.	Asteraceae	Girawa	Bush/woodland, forest habitats, home gardens [7, 8]
Tragia pungens (Forssk.) M¨ull. Arg.	Euphorbiaceae	Ablalit	Among open rock bushlands [8]
Zehneria scabra (L. f.) Sond.	Cucurbitaceae	Aregresa	Wild
Ocimum lamiifoliumHochst. ex. Benth.	LippiaadoensisHochst.	Damakesie	Acacia-Commiphora bush- and woodland, limestone slopes, home gardens [6]
Achyranthes asperaL.	Amaranthaceae	Telenj	Wild
Hagenia abyssinica (Bruccie) T. F. Gmel.	Rosaceae	Kosso	Montane forest and grassland Moist evergreen forest [6]
Justicia schimperianaHochst. ex A. (Nees) T. Anders.	Acanthaceae	Sensel	Open woodland, riverine vegetation, live fence of house [6]
Moringa stenopetala (E. G. Baker) Cufod.	Moringaceae	Shiferaw	Cultivated in terraced fields, gardens, small towns, in riverine

Scientific name	Family	Local name	Habitat
			and woodland [6]
Opuntia ficusindica (L.) Miller	Cactaceae	Yebereha Kulkual	Disturbed areas, degraded areas, live fence of houses [7]
Tribulus terrestris L.	Zygophyllales	Kurnchit	Open and disturbed places, often on sandy soils [6]
Datura stramonium L.	Solanaceae	Astenagir	Disturbed places, waste ground, near water holes, roadsides [6]
Allium sativum	Amaryllidaceae	Nech-shinkurt	Dry sandy plains, dried river course [6]
*Euclea racemosa*L.	Ebenaceae	Dedeho	In clearings and along margins [8, 6, 9]
*Barleria eranthemoides*R. Br. ex C. B. Cl.	Berberidaceae	Yesetaf	Acacia woodland Scrublands [8]
Tamarindus indica al.	Fabaceae	Roka	Grassland, woodland [10]
Withania somnifera (L.) Dunal.	Solanaceae	Gizewa	In cultivations, disturbed places in the highlands, on lake shores [8]
-Ximenia Americana L.	Olacaceae	Enkoy	Acacia woodland, Acacia-Ballanites, woodland [8, 11]
Cucumis ficifolius	Cucurbitaceae	Yemidir Embuoy	Wild
Rumex Nervosus	Polygonoideae	Embuacho	Wild
Eucalyptus globules Labill	Myrtaceae	NechBahirzaf	Plantations [7, 12]
Cordia africanaLam.	Boraginaceae	Wanza	Not defined
Foeniculum vulgare.	Apiaceae	Ensielal	Not defined

3.2. Phytochemicals

Analysis of the phytochemical properties of the medicinal plants used to show and isolated the drug lead compounds and components from the parts of the plant. The unique biological activity of the plants can be identified by the phytochemicals properties such as alkaloids, L'stachydrine, saponin glycosides, alkaloids, phytosterols, terpenoids, tannins, sterol, polyphenols, flavonoids, and anthranoids. The most parts of the plants used for the analysis of the phytochemicals properties were leaves, roots, barks, and fruits. In this review, the medicinal plants were investigated for phytochemical constituent of ethanol, methanol, chloroform, acetone, hexane, petroleum ether, ethyl acetate and aqueous (water) extraction of different phytochemicals.

The medicinal power of traditional plants species lies in phytochemical components that cause definite pharmacological action on human body [13]. Based on their metabolism activity in the plant, phytochemicals components are generally can be mainly divided into two groups, which are primary which has mainly sugars, amino acids, chlorophyll and proteins and secondary constituents while secondary constituents consists of alkaloids, flavonoids, saponins, tannins, phenolic compounds and many more [14]. In this review, the most published articles recognized the presences of specific phytochemical components in the plants was indicated by the positive sign (+) and the absence of phytochemical components in the plants, by the negative sign (-).

3.2.1. Alkaloids

Alkaloids are one of the main and largest components that produced by plants, and they were a metabolic by-product that derived from the amino acids [13]. Based on the published articles in these reviews, alkaloids were extracted from the different parts of the plants by using different chemicals such as ethanol, methanol, chloroform, acetone, hexane, petroleum ether, ethyl acetate and aqueous (water) and these components were present in most parts of the medicinal plant like leaves, roots and fruits while in some parts of plants were not present (Ocimum lamiifolium, Brucea antidysenterica J. F. Mill. and Zehneria scabra).

3.2.2. Flavonoids

Flavonoids also called bio-flavonoids are polyphenol antioxidants found naturally in plants, and they are secondary metabolites meaning they are organic compounds that have no direct involvement with the growth or development of plants [15]. In this review, flavonoids were detected in most plant species except in some medicinal plants and for different solvent give a different response for the same plant species Zehneria scabra (L. f.) Sond and Rumex abyssinicus plant species.

3.2.3. Tannins

Tannins are the complex organic, non-nitrogenous derivatives of polyhydroxy benzoic acids which are widely distributed in the plant kingdom. Most of the true tannins have the molecular weight in between 1000 and 5000 [13].

They probably serve as a protective to the plant during growth and destroyed or deposited as end product of metabolism in some dead tissues of the mature plants [13].

In this review, Tannins were detected in most plant species like Cordia Africana Lam., Brucea antidysentericaJ. F. Mill., Hagenia abyssinica (Bruccie) T. F. Gmel., except in some medicinal plants and also for different solvent give different response for the same plant species like Zehneria scabra (L. f.) Sond and Tribulus terrestris L., plant species. Tannins are generally used in tanning process and used as healing agents in inflammation, burn, piles and gonorrhoea [16].

3.2.4. Saponins

Saponins contain the polycyclic aglycones and it is derived from the Latin word of 'sapo', which means the plant consisting of frothing agent. Saponins are an important group of glycosides which are widely distributed as plant constituents and which are neutral and soluble in water [13]. As the reported the authors in this review, saponins were detected in most medicinal plants like Phytolacca dodecandraL'H´erit., Cordia Africana Lam., Ocimum lamiifolium Hochst. ex. Benth., Moringa stenopetala (E. G. Baker) Cufod., and Tribulus terrestris L., common plant species while in some plant species were show variable result that depends on the given solvents and not totally detected in the parts of the plants.

3.2.5. Phenols

Phenols are widely found in most plants and highest groups of secondary plant metabolites. As the reported the authors in this review, saponins were detected in most medicinal plants like Foeni culumulgare., Withania somnifera (L.) Dunal.,

Phytolaccadodecandra L'H´erit., Eucalytusglobules Labill., Hagenia abyssinica (Bruccie) T. F. Gmel., while in some plant species were show variable result that depends on the given solvents and not totally detected in the parts of the plants.

3.2.6. Steroids

Steroids are organic compounds with four cyclohexane rings. These steroidal compounds have been used to cut stress, reduce cholesterol levels, activate immune system, and enhance memory and learning and to treat tumor cells in cancer cases [17, 18].

Based on the given data from the Tables, steroids were detected in some plant species while in some plants its result depends on the types of solvents.

3.2.7. Terpenoids

Terpenoids are small molecular products synthesized by plants and are probably the most widespread group of natural products. Terpenoids show significant pharmacological activities, such as antiviral, antibacterial, antimalarial, anti-inflammatory, inhibition of cholesterol synthesis and anti-cancer activities [19]. Based on the given data from the Tables, Terpenoids were detected in most analysis plant species while in some plants its result depends on the types of solvents

Even though there are so many medicinal plants in Ethiopia, this review of the phytochemical analysis show that some medicinal plants were studied by investigator in different area of Ethiopia while some traditional plants are not studied. According to the data of published articles, the extraction techniques of the medicinal plants were mainly digestion and aqueous-alcohol extraction. The following Tables show that among the inadequate phytochemical investigation results available in the Ethiopia area levels.

Table 2. *Phytochemical Screening of Petroleumether, chloroform, acetone and ethanol extracts of O. Integrifolia Benthleaves [20].*

S. N	Plant Constituent	Petroleumether extract	Chloroform extract	Acetone extract	Ethanol extract
1	Alkaloids	+	+	+	-
2	Coumarins	+	+	+	+
3	Flavonoids	+	++	+++	++
4	Phenolics compound	+	++	+++	++
5	Terpenoids	+	+	++	++

+ = the presence and - = the absence of chemical constituents.

Table 3. *Phytochemical screenings of chloroform/methanol crude extract of L. Sativum seeds [21].*

S. N	Chemical Constituent	Chloroform/ Ethanol extract
1	Phenols	+
2	Alkaloids	+
3	Phytosterols	+
4	Steroids	+
5	Saponins	+
6	Carbohydrates	+
7	Terpenoids	+
8	Glycosides	+
9	Tannins	+
10	Proteins	+
11	Cholesterol	+
12	Flavonoid	+

+ = the presence and - = the absence of chemical constituents.

Table 4. *Phytochemical screenings of crude extracts of D. stramonium leaves [22].*

S. N	Chemical Constituent	Crude Extracts				
		Chloroform extract	Acetone extract	Petroleumetherextract	Hexane extract	Ethanol extract
1	Flavonoid	+	+	+	+	+
2	Cholesterol	+	+	+	+	-
3	Tannins	+	+	+	+	+
4	Glycosides	+	+	+	-	+
5	Alkaloids	+	+	+	+	+
6	Phenols	+	+	-	+	+
7	Saponins	+	+	+	+	+
8	Proteins	+	+	+	+	+
9	Carbohydrates					
10	Terpenoids					

+ = the presence and - = the absence of chemical constituents.

Table 5. *Phytochemical components of ethanol extracts of Ocimum lamiifolium [23].*

S. N	Chemical Constituent	Ethanol extract
1	Anthraquinones	-
2	Terpenoids	+
3	Flavonoids	+
4	Saponins	+
5	Tannins	+
6	Alkaloids	-
7	Steroids	+

+ = the presence and - = the absence of chemical forms.

Table 6. *Phytochemical screening of Sidarhombifoliaaqueousmethanolextractofaerialpart [24].*

S. N	Chemical Constituent	Results
1	Terpenoides	+
2	Saponins	-
3	Alkaloids	+
4	Polyphenols	+
5	Flavonoids	+
6	Cardiacglycosides	-
7	Quinine	+

"+"stands for the presence and "-" stands for the absence of the chemical constitutes.

Table 7. *Antibacterial activities of selected medicinal plants extracted by soaking method (conc. 100 mg/ml) [25].*

Tests	Name of Medicinal Plants							
	Eucalyptus globules	Withania somnifera.	Phytolacca dodecandra	Brucea antidisenterica.	Otostegia integrifola	Verbena officinalis	Cordia Africana	Foeniculum Vulgare.
Alkaloids	+	+	+	-	+	-	-	-
Tannins	+	-		±	+	+	+	-
Saponins	-	-	+	-	-	+	+	+
Flavonds	+	+	+	+	+	+	-	+
Cardiac Glycosides	+	+	-	+	-	±	-	+
Phenols	+	+	+	-	-	+	-	±

Where - Indicate absence; + Indicate presence; ± Indicate slight presence/absence.

Table 8. *Phytochemical tests results of tuber and leaves of Zehneria scabrain different solvents [26].*

Sn.	Phytochemicals	Solvents			
		Tuber			Leaf
		Aqueous	Ethanol	Chloroform	Methanol.
	Phenol	+	+	+	-
	Steroidss	+	+	-	-
	Tannins	-	-	+	+
	Flavonds	-	-	+	
	Alkaloids	-	-	-	-
	Saponins	-	-		+
	Glycosides	+	+	-	
	Proteins	+	+	+	
	Amino acids	+	+	+	
	Anthraquinone glycosides				+
	O-anthraquinones				+
	Phlobatannins				+
	Diterpenes				
	Carbohydrates				

(+) = Present, (-) = Absent.

Table 9. *Phytochemical screening of the fractions of the rhizomes of Rumex abyssinicus [27].*

SN.	Secondary Metabolite	Solvents		
		Aqueous fraction	MeOH fraction	EtOAc fraction
1	Saponins	+	+	-
2	Phenolic Compounds	+	+	+
3	Terpenoids	-	+	+
4	Tannins	+	+	+
5	Flavonoids	-	-	+
6	Steroids	-	-	+
7	Anthraquinones	-	+	+
8	Cardiac glycosides	+	+	+

(+): Present; (-): Absent.

Table 10. *Qualitative phytochemical analysis of diethyl ether, chloroform, ethyl acetate, and ethanol leaves extract of R. nervosus [28].*

SN.	Phytoconstituents	Solvent leaves extract of *R. nervosus*			
		Diethyl ether	Chloroform	Ethyl acetate	Ethanol
1	Alkaloids	+	+	+++	+
2	Flavonoids	+	+	++	+++
3	Tannins/phenols	-	+	++	+
4	Cardiac glycosides	+	+	+	+
5	Terpenoids	++	+	++	++
6	Saponins	+	+	-	+
7	Steroids	+++	+	+	+
8	Carbohydrates	+	+	+	+
9	Amino acids and protiens	+	+	+	+
10	Oils and fats	+	-	-	-

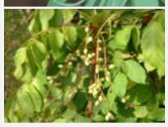
(+) Score indicates slight positive reaction for primary and secondary metabolites, (++) Score indicates definitive positive reaction for primary and secondary metabolites, (+++) Indicate significant reactions were obtained for primary and secondary metabolites, (−) Indicate absences of primary and secondary metabolite. *R. nervosus: Rumexnervosus.*

Table 11. *Phytochemical analysis result of Aloe pulcherrima [29].*

S. N	Chemical Constituent	Results
1	Anthraquinones	+
2	Flavonoids	+
3	Saponins	+
4	Glycosides	+
5	Tannins	+
6	Phenols	+
7	Alkaloids	+
8	Steroids	-

Abbreviation: +, present; −, absent.

Table 12. *Photography of some Ethiopian medicinal plants [30-32].*

Scientific name	Family	Local name	Photograph	Scientific name	Family	Local name	Photograph
Aloe pulcherrima	Aloaceae	Eret		Justicia schimperiana Hochst. ex A. (Nees) T. Anders.	Acanthaceae	Sensel	
Brucea antidysenterica J. F. Mill.	Simaroubiaceae	Abalo		Moringa stenopetala (E. G. Baker) Cufod.	Moringaceae	Shiferaw	
Premna schimperi Engl.	Lamiaceae	Chocho	Not found	Opuntia ficusindica (L.) Miller	Cactaceae	Yebereha Kulkual	

Scientific name	Family	Local name	Photograph	Scientific name	Family	Local name	Photograph
Calotro pis procera (Ait.) Ait. f.	Asclepiadaceae	Qimbo		Tribulu sterrestris L.	Zygophyllales	Kurnchit	
Capparis tomentosa Lam.	Capparidaceae	Gumoro		Datura stramonium L.	Solanaceae	Astenagir	
Cymbopogonsp.	Poaceae	Serdo		*Allium sativum*	Amaryllidaceae	Nech-shinkurt	
Lepidium sativum L.	Brassicaceae	Fetto		*Euclea racemosa*L.	Ebenaceae	Dedeho	
Otostegia --integrifolia Benth.	Lamiaceae	Tinjut		*Barleria eranthemoides* R. Br. ex C. B. Cl.	Berberidaceae	Yesetaf	Not found
Phytolacca dodecandra L'H´erit.	Phytolaccaceae	Endod		Tamarindus indica al.	Fabaceae	Roka	
Rumex abyssinicus Jacq.	Polygonaceae	Meqmoko		Withania somnifera (L.) Dunal.	Solanaceae	Gizewa	
Vernonia amygdalina Del.	Asteraceae	Girawa		Ximenia Americana L.	Olacaceae	Enkoy	
Tragia pungens (Forssk.) M¨ull. Arg.	Euphorbiaceae	Ablalit	Not found	Cucumis ficifolius	Cucurbitaceae	Yemidir Embuoy	
Zehneria scabra (L. f.) Sond.	Cucurbitaceae	Aregresa		Rumex Nervosus	Polygonoideae	Embuacho	
Ocimum lamiifolium Hochst. ex. Benth.	Lippiaadoensis Hochst.	Damakesie		Eucalyptus globules Labill	Myrtaceae	Nech Bahirzaf	
Achyranthes aspera L.	Amaranthaceae	Telenj		Cordia africana Lam.	Boraginaceae	Wanza	
Hagenia abyssinica (Bruccie) T. F. Gmel.	Rosaceae	Kosso		Foeniculum vulgare.	Apiaceae	Ensielal	

In the Ethiopia, there is increasing demands for many most popular, more available and effective plant species by the people. As stated by the different authors in the above Tables, different phytochemicals were investigated in different plant species with different solvent concentration. Even though different phytochemicals were analysis for different plant species, their concentration was varied from one plant species to other plant species for different parts of the plant. Based on the above on formation from the Table, one types of phytochemical cannot be detected in all plant species and the concentration of one phytochemical contents vary from one parts of the plant to other parts that means the concentration of one phytochemical contents in leave can vary from the concentrations of phytochemical contents in root and fruits. Generally, even though there are various medicinal plants in the Ethiopia, there are no studies shows that enough information about qualitative and quantitative phytochemical contents for most plant species in the country.

This may be due to the lack of enough laboratory facility and modern technology available in the country for improve the synthesis and extract of phytochemical components for developing the new drug product and drug leading compounds from the different parts of the medicinal plants by the government and private company.

4. Conclusions and Recommendations

Human beings in the world pass their life for a long time to discover new drug to diagnoses, prevent and treat various disease. To save their lives from dangers disease, a new and powerfully drug must be discovered and develop from the different parts of the plant. In order to future promote for developing of new drug synthesis and extract of bioactive components from the parts of plant, availability and valuable of information is very important. Based on the above data available in the review, most phytochemical components of traditional medicinal plants in the Ethiopia do not analysis. This leads to more traditional plants in Ethiopia do not recognized by international scientific organization, and they do not have scientific names. This review recommended finding further most common medicinal plants to investigate in scientific researches and to governing them in the scientific naming system and as well as further studies should focus on green synthesis of heavy metals on different types of medicinal plants in Ethiopia. Based on this review, the studied phytochemical characteristics of medicinal plants in the Ethiopia are a few, so further study could be needed for examine and characterize the properties of unrecognized plants species in the Ethiopia.

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Conflicts of Interest

The author declares that I have no competing interests.

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