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INDIGENOUS KNOWLEDGE OF TRADITIONAL MEDICINAL PLANTS AGAINST SEXUAL TRANSMITS DISEASES: REVIEW

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ABSTRACT: Sexually transmitted diseases are serious problem concerned with health, social and economic challenges in the world, especially in Africa. Rural patients are more dependent on folk medicinal healers for treatment of sexually transmitted diseases. Rural people depend on traditional medicinal plants because of lack of access to modern medical facilities and hesitancy to relate this form of illnesses in front of unknown doctors. These medicinal plants have been used for the treatment of many sexually transmitted diseases without any scientific evidence. Since, the traditional healer usually resides in the same village or an adjoining area, the patient is more comfortable in seeking them for treatment. At present, there is more emphasis on determining the scientific evidence and rationalization of the use of these preparations. Taking into account the large number and structural diversity of currently available plant constituents, the plant kingdom remains an exciting source for new antiviral and anti-bacterial agents.

INTRODUCTION: A medicinal plant is any plant with one or more of its organ(s) containing substance(s) that could be used for the therapeutic purpose (treating and preventing) or from which a precursor for the synthesis of useful drugs may be isolated [1]. The use of plants and plant Products as medicines could be traced as far back as the beginning of human civilization. Many human diseases are known to have been treated with herbal medicine throughout the history of human beings. Ethno-botanical has been used as a traditional treatment for numerous human diseases for thousands of years in many parts of the world. In rural areas of developing countries, herbal materials continue to be used as the primary source of medicines [2].

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About 80% of the people in developing countries use traditional medicines for their primary health care [3]. Despite the advances in Western medicine, African conventional medicine has gained renewed interest in the health care services throughout the continent. This has probably been motivated by the rapidly increasing awareness of the potential and healing abilities of alternative medicines, especially from the use of medicinal plants, as well as the inadequate access to western medicine and physicians and the high cost for Western drugs [4]. The argument for the local African populations resorting to traditional remedies could also be partly justified by the fact that natural product inspired molecules represented 80% of drugs that had been put into the drug market by 1990 [5, 6].

Objective: The object of this paper is to provide a review of results reported by most researchers concerned with traditional medicinal plants used in the management of sexual transmits disease, to give awareness on advantage of using medicinal plants to fight sexual transmitted diseases, recommended areas that need future attention by researcher

specially in Ethiopia, which may be expected to fill the gap in future.

The Motivation for the Review: Sexually transmitted diseases are amongst the top five illnesses which need to be prioritized as a matter of urgency [7]. Knowledge and use traditional medicinal plants decrease from generation to generation because these generations have no interest in traditional ways and they count as backwardness. To save indigenous knowledge about traditional medicinal plants especially herbal against sexually transmitted diseases, sharing information and binding to gather diverged information about these plants is very important. Additionally, it is essential to address factors that damage medicinal plants whether human factors or natural. Mass of the world especially developing countries like Africa is not fully satisfied by western medicine because of financial problem. Since, there is the diversity of medicinal plants are there in Africa, many research should be conducted whether biologically or chemically to solve the problem concerned with this issue.

We expect that this review was done to give some awareness about sexual transmitted diseases and their treatment by locally available medicinal plants in order to solve problem related to deficiency of drug in developing countries like Ethiopia and increase value of knowledge of traditional healers on commonly used medicinal plants in treatment of sexual transmitted diseases as well as to transfer awareness of traditional medicinal plants for generations.

DISCUSSION:

Traditional Health Practitioners and Medicinal Plants: There are two distinct categories of conventional health practitioners, *i.e*., traditional healers and traditional herbalists [7, 8]. Traditional herbalists treat physical ailments such as fever, cancer, ulcers, syphilis, diabetes, chronic cough, etc. and they use local herbs in treatment. On the other hand, traditional healers deal with social and psychological problems and use spiritual powers to counsel patients, analyses the source of a problem and administer treatment depending on what the spirits require (*e.g*., offering animal sacrifice) or according to former experience with a similar case[8].

The herbs are administered in different forms to the patient. Some herbs are pounded into powder form and mixed in food or drinks. Others are mixed in Vaseline for external use especially in the case of skin-related infections and external wounds. Also, some of the herbs are boiled for drinking or steaming while others are squeezed raw in water for drinking or bathing. In some cases, regular boiling is required to preserve the herbs for a longer period. Sexual-transmitted diseases are serious problem concerned with health, social and economic challenges in the world especially in developing countries like Ethiopia. In Africa mass of the People depend on traditional medicinal plants to solve their problem concern with this issue because of a lack of access to modern medical facilities and lack of awareness about current medicine.

Indigenous Knowledge of Medicinal Plants: The traditional medicinal plant is assuming greater importance in the primary health care of individuals and communities in many developing countries [8]. These approaches to health care belong to the traditions of each culture and have been handed down from generation to generation [9]. Tribes, cultures and indigenous people of nations throughout the world have evolved a system of traditional medicine for generations, and communities have found most of these medical practices valuable and affordable and still depend on them for their health care needs [9, 10]

The Advantage of Using Medicinal Plants: Medicinal plants provide health security to rural people in primary health care, especially for resource-poor communities. Medicinal plants and herbs contain substances known to modern and ancient civilization for their healing properties, and these substances remain the basis for a large proportion of the commercial medications. There are many traditional plants in Africa. African conventional medicine has gained renewed interest in the health care services throughout the continent. This has probably been motivated by the rapidly increasing awareness of the potential and healing abilities of alternative medicines, especially from the use of medicinal plants, and inadequate access to western medicine and physicians and the high cost for Western drugs.

Factors that Affect Traditional Medicinal Plants: Factors that affect medicinal plants are classified into two broad categories. Human induces and natural elements. Some examples of human-induced are agricultural expansion, for fuel, construction materials; urbanization and natural factors are a volcano, flood, shortage of rain, climate change. A human being can minimize factors affect medicinal plants especially human-induced factors by taking care use of natural resources.

Traditional Medicinal Plants against Sexual-Transmitted Diseases in Ethiopia: Ethiopia, with its diverse topography, has a rich endemic element in its flora approximately thousands of higher plants species including medicinal plants [11]. Similarly, Ethiopia is rich with the diverse heritage of traditional medical practices. In Ethiopia, people who live in the rural area have a long history of conventional plants used for medicinal purpose. However, due to population pressure, accelerated urbanization, recurring drought, and deforestation, most of the medicinal plants are either destroyed or are on the verge of extinction [11, 12]. Documentation of this indigenous knowledge of healing system remains at minimum level especially for sexual transmitted diseases [12].

Some investigations in certain parts of Ethiopia have indicated the rate of erosion of both indigenous knowledge and the herbs signals for the need of intervention [13]. Indeed, in rural communities in Ethiopia, like other developing countries and elsewhere, traditional medicines will continue to remain a vital and permanent part of the people's own health care system. In Ethiopia, it is very known to against sexual transmits diseases by medicinal plants. *e.g.* gonorrhoea is one of the most prevalent infections which are prevented by medicinal plants. Majority of the plant part used are leaves and root. The preparation and application of these medicinal plants are different from place to place.

Some of the Sexually Transmitted Diseases: Gonorrhea is one of the classical sexually transmitted disease (STD) with human as the host for the causative agent, *N. gonorrhea.* According to a global estimate from World Health Organization, around 62 million new cases occurred in 1995, and the highest rate was found in South and Southeast Asia, Sub Saharan Africa and South and Central America [14]. It is estimated that more than 340 million new episodes of curable sexually transmitted diseases occur each year and gonorrhea is one of the most common infections [15].

According to the Family Health Division, Ministry of Health, Nepal, gonorrhea is one of the prevalent STD [16]. The problem is further compounded by the emergence of resistance to antimicrobial agents that are commonly used against *N. gonorrhoea,* making the treatment expensive and prolonged [17]. In the Kisumu region, Kenya the population is also at risk of major infectious sexually transmitted diseases (*e.g*., gonorrhea, syphilis). Based on the mentioned challenges [18], the majority of people in this region are dependent on traditional medicines mainly from plant origins, to manage various ailments they face in their day to day lives. Natural products derived from medicinal plants have proven to be an abundant source of biologically active compounds, many of which have been the basis for the development of new lead chemicals for pharmaceuticals [19].

HIV/AIDS: The herbs used in the management of HIV/AIDS-related infections boost the body immune system by making HIV inactive to prevent multiplication. Some herbs also stimulate the production of blood cells to replace those destroyed by the virus. These herbs are also useful in repairing worn out tissues, restoring appetite, restoring lost body nutrients and Cleansing out intoxicants from the body [20].

Several studies have demonstrated the inhibitory properties of a variety of crude plant extracts, as well as chemically characterized phytomolecules against different stages of the life cycle, of HIV [20]. Some of these studies focused on plant parts used traditionally in specific geographic locales in the treatment of various forms of infectious diseases [21] interestingly; a few plant-derived compounds such as papaverine, glycyrrhizin and trichosanthin were seen to have promise and have been evaluated in AIDS patients. These developments show that useful anti-HIV agents could be obtained from plants sources [22]. Specific African-based studies have also indicated the potential of local medicinal plants for anti-HIV activity. Asres and colleagues

23 investigated the effect of 71 polar and nonpolar extracts from 21 Ethiopian medicinal plants comprising 14 plant families on HIV-1 and HIV-2 replication.

TABLE 1: REPORTED TRADITIONAL MEDICINAL PLANTS USED AGAINST SEX-TRANSMITTED DISEASES IN DIFFERENT PARTS OF THE WORLDS

Scientific names	Plant part used	*E.g.* of Compound extracted	Major Uses
Sapindus mukorossi	leaves	Alkaloids, saponins, carbohydrates	Antigonorrhoeal [14]
Dodonaea angustifolia	leaves	papavarine, glycyrrhizin, and trichosanthin,	Anti-HIV[20]
Combretum paniculatum	leaves	papavarine, glycyrrhizin, and trichosanthin	Anti-HIV and other sexual diseases [20]
Curcuma longa	leaves	Alkaloid,saponin	Antigonorrhoeal [21,41]
Ocimum sanctum	leaves	Alkaloids, Tannins, Glycosides,	Antigonorrhoeal [21]
Justicia adhatoda	leaves	Phenols, alkaloids, flavonoids, tannins, saponins, anthraquinone reducing sugars,	Antigonorrhoeal [21, 43]
Zanthoxylum	Leaf, fruits	(E)-β-ocimene,16-germacradien-5-ol,-δ cadinene	Anti-HIV [44]
Lannea edulis	Roots	Alkylphenols, Dihydroalkylhexenones	Gonorrhea [24, 25]
Annona stenophylla	Roots, leaves	Tannins, alkaloid, saponins, anthraquinone	Gonorrhea [26]
Allium sativum	leaves	Glycosides, Oils, Fats	Antigonorrhoea [21,41]
Amaranthus spinosus	leaves	Carbohydrates, protein, tannins, flavonoids, phenolics compounds	Treatment of sexual transmitted diseases [42]
Centella asiatica	leaves	Asiaticacid, asiaticoside	Treatment of sexual transmitted diseases [42]
Hippeastrum breviflorum	bulb	Mannose-specific agglutinins lectins, Lycorine	Treatment of sexual transmitted diseases[h]
Gardenia imperialis kschum	Root and bark	7,4-dihydoxy flavones,5-hydroxy3,6, 3',4',5'hexamethoxy flavone	Used in the case of gonococci and male sexual impotence [27]
Gardenia ternifolia	Leaves and bark	Flavonoids(naringenin-7-O-methyl ether,4,5-Dihydroxy-6,7-dimethoxyflavone, steroids(stigmasterol, β-sitosterol	Treatment of sexual transmitted diseases [28]
Nauclea latifolia	Stem bark	Naucledial, Epinaucleidal, tetrahdedesoxycoridfoline	Treatment of sexual transmitted diseases [29]
Pentas bussie	root	-	Taken as a remedy for gonorrhea [30]
Ixonanthaceae *(spe. Irvingia gabonensis)*	Stem bark	betulinic acid,3,3,4-tri-O-methylellagic acid, hardwickiic acid	Treatment of gonorrhea [31]
Lannea edulis	root	flavonoids and tannins	Gonorrhea [45]
Asphodelaceae	leaves	Alkaloids, phenolic compounds	gonorrhea medicine [45]
Cassiaabbreviata oliv	Root	Anthraquinones, triterpenoids, antibacterial	Treatment of gonorrhea [38,45]

Remember that= - indicate that any compound is not found in the literature.

A Sample of Reported Traditional Medicinal Plants and their Sensitivity to Sexually Transmitted Diseases: According to the paper reported by Dipak Bhargava from India, the antigonococcal activity often Nepalese folk medicinal plants commonly used by the ethnic groups of peoples was evaluated. Among ten plant extracts, the ethanolic extracts of four plants and hexane extracts of one plant were very sensitive to *N. gonorrhoea.*

The maximum mean zone of inhibition by agar well diffusion method was seen for *Eupatorium odoratum,* and the minimum was for *Syzygium cumini* [37]. The minimum inhibitory concentration by test tube dilution method for *Eupatorium odoratum* was the least followed by *Ocimum sanctum, Sapindus mukorossi*, *Allium sativum* and *Syzygium cumini* [37]. The paper reported from Abuja and Sokoto town indicated that the presence of essential phytochemicals such as alkaloids and tannins in the plants like roots and leaves of *Bridelia micrantha, Detarium senegalense, Hymennocardia acida, Alchornea cordifolia* and *Cassia italica* provides a plausible explanation for the medicinal uses of plants in rural areas. The selected medicinal plants will be a good target in drug discovery and targeting in the treatment and management of gonorrhea and syphilis [38]. Roots and pods of the Madeira vine (*Anredera cordifolia*), *E. transvaalense, Elephantorrhiza burkei, Rauvolfia caffra, Senna petersiana*, and assegai wood (*Terminalia sericea*) were studied and reported by Shari Henson and his colleagues [39, 40].

CONCLUSION: It can be concluded that traditional medicinal plants have excellent potential to against sexually transmitted diseases. But present day, these generations are losing

information about traditional medicinal plants because of the absence of practicing and sharing information with traditional herbalists. Since, traditional herbalists are bases for modern extraction, researchers should care and save the information from such persons to fill the gap in the future. Finally, documentation and binding diverged information should be continued to preserve the knowledge and used continuously.

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CONFLICT OF INTEREST: Nil

REFERENCES:

1. Ishmael M: Antibacterial activities of selected medicinal plants used to treat sexually transmitted infections in blouberg area, limpopo province. Agriculture, University of Zululand, Kwadlangezwa, South Africa 2013: 1-167.
2. Chitme HR, Chandra R and Kaushik S: Studies on anti-diarrheal activity of *Caltropis gigantean* R. BR. In experimental animals. Journal of Pharmacy and Pharmaceutical Science 2003; 7: 70-75.
3. Kim HS: Do not put too much value on conventional medicines. J of Ethnopharmacology 2005; 100: 37-39.
4. Ntie-Kang F, Lifongo LL, Mbaze LM, Ekwelle N, Owono LCO, Megnassan E, Judson PN, Sippl W and Efange SMN: Cameroonian medicinal plants: bioactivity *vs.* ethnobotanical survey and chemotaxonomic classification. BMC Complementary and Alternative Medicine 2013; 13(147): 1-18
5. Chin YW, Balunas MJ, Chai HB and Kinghorn AD: Drug discovery from natural sources. AAPS J 2006; 8(2): 239-E253.
6. Li JWH and Vederas JC: Drug discovery and natural products: end of an era or an endless frontier? Science 2009; 325: 161-165.
7. WHO, World Health Organisation: STD Statistics Worldwide, Prevalence and incidence of selected curable Sexually Transmitted infections, Overview, 2001.
8. Nalugwa S: Indigenous Approaches to the HIV/AIDS Scourge in Uganda.
9. Peltzer K and Mngqundaniso N: Traditional Healers and Nurses: A qualitative study on their role on STIs including HIV and AIDS in Kwa Zulu-Natal, South Africa. Afr J Trad CAM 2008; 5(4): 380-386.
10. WHO: Traditional Medicine-WHO Information fact sheets. Fact sheet N134, 1996.
11. Oladipo HO and Shehu R.A: Phytochemical and anti-bacterial screening of selected medicinal plants used in the treatment of sexually transmitted diseases in rural areas of Abuja and Sokoto town. J Bacteriol Parasitol 2013; 4(4): 215
12. Akililu L and Yau P: Studies on the molluscicidal properties of Endod (*Phytolaca dodecandra*). Toxicity of various molluscicides to fish and snails. Ethiop Med J 1974; 12: 109-116.
13. Abera B: Medicinal plants used in traditional medicine in Jimma zone, Oromia, southwest Ethiopia. Ethiop J Health Sci 2003; 13(2): 85-94.
14. Kloos H, Tekle A, Yohannes A, Akililu L and Yosef A: Preliminary studies of traditional medicinal plants in 19 markets in Ethiopia. Use patterns and public health aspects. Ethiop Med J 1976; 16: 33-40.
15. WHO: World Health Organization. The World Health Report. Bridging the gap. WHO. Geneva 1995; 1, 118.
16. World Health Organization: Regional Strategic Action Plan for the prevention & Control of Sexually Transmitted Infections. WHO. Geneva 2008.
17. Ministry of Health: Government of Nepal. National Medical Standard for Reproductive Health Services. Family Health Division 2003.
18. Bhargava D, Shakya B, Mondal KC and Rijal BP: The emergence of penicillin resistant Neisseria gonorrhoeae. J Inst Med 2010; 32 (1): 15-18.
19. Agnew ADQ and Agnew S: Upland Kenya wildflowers, East Africa Natural History Society. African Medical and Research Foundation, Edition 2nd, 2008.
20. Palombo EA: Phytochemicals from traditional medicinal plants used in the treatment of diarrhoea: Modes of action and effects on intestinal function. Phytotherapy Research 2006; 7: 17-724.
21. Bhargava D, Kar S, Shivapuri JN, Shakya B and Maity C: Screening of antigonorrhoeal activity of some medicinal Plants in Nepal. International Journal of Pharma and Bio Sciences 2011; 2(1): 203-212.
22. Vlietinck AJ, De BT, Apers S and Pieters LA: Plant-derived leading compounds for chemotherapy of human immunodeficiency virus (HIV) infection. Planta Med 1998; 64(2): 97-109.
23. De Clercq E: Current lead natural products for the chemotherapy of human immunodeficiency virus (HIV) infection. Med Res Rev 2000; 20(5): 323-49.
24. Kong JM, Goh NK, Chia LS and Chia TF: Recent advances in traditional plant drugs and orchids. Acta Pharmacol Sin 2003; 24(1): 7-21. 25.
25. Asres K, Bucar F, Kartnig T, Witvrouw M, Pannecouque C and De Clercq E: Antiviral activity against human immunodeficiency virus type 1 (HIV-1) and type 2 (HIV-2) of ethnobotanically selected Ethiopian medicinal plants. Phytother Res 2001; 15(1): 62-9.
26. Chigora P, Masocha R and Mutenheri F: The role of indigenous medicinal knowledge (IMK) in the treatment of ailments in rural Zimbabwe: the case of Mutirikwi communal lands. J Sustainable Develop Africa 2007; 9: 26-43.
27. Maroyi A: Ethnobotanical study of medicinal plants used by people in Nhema communal area, Zimbabwe. J Ethnopharmacol 2011; 136: 347-354.
28. Gelfand M, Drummond RB, Mavi S and Ndemera B: The traditional medical practitioner in Zimbabwe: his principles of practice and pharmacopeia. Gweru: Mambo Press, 1985.
29. Jiofak, Fakunana C, Guedje N, Kumeuze V and Fongnzossie E: Ethnobotanical use of medicinal plants of two ethnoecological regions of Cameroon. Int J Med Sci 2010; 2: 60-79.
30. Adjanohoun EJ, Ahyi MRA, Assi LA, Akpagana K and Chibon P: Contribution aux etudes ethnobotaniques et floristiques au Togo. Medicine Traditionalle et pharmacope. Agence de cooperation culturelle et technique, Paris, France, 1986: 671.
31. Mangassouba FB, Diallo A, Kouyate M, Mara F and Mara O: Ethnobotanical survey and antibacterial activity of some plants used in Guinean traditional medicine. J Ethnopharmacol 2007; 114: 44-53.

32. Bukuru J: Isolation and structural elucidation of natural products from pentas bussie K. krause, pentas lanceolate (Forsk) Deflers and pentas parvifolia Hiern (Rubiaceae). Ph.D. Thesis, University of Ghent, Belgium 2003.
33. Kuete V, Wabo GF, Ngameni B, Mbaveng AT, Metuno R, Etoa FX, Ngadjui BT, Beng VP, Meyer JJM and Lall N: Antimicrobial activity of the methanolic extract, fractions and compounds from the stem bark of *Irvingia gabonensis* (Ixonanthaceae). J Ethnopharmacol 2007; 114(1): 54-60.
34. Gelfand M, Drummond RB, Mavi S and Ndemera B: The traditional medical practitioner in Zimbabwe: his principles of practice and pharmacopeia. Gweru: Mambo Press; 1985.
35. Wyk BE V, Oudtshoorn BV and Gericke N: Medicinal plants of South Africa. Pretoria: Briza Publications Pretoria, 2009.
36. Maroyi A: Ethnobotanical study of medicinal plants used by people in Nhema communal area, Zimbabwe. J Ethnopharmacol 2011; 136: 347-354.
37. Botes L, van der Westhuizen FH and Loots DT: Phyto-chemical contents and antioxidant capacities of two *Aloe greatheadii* var. davyana extracts. Molecules 2008; 13: 2169-2180.
38. Madureira AM, Ramalhete C, Mulhovo S, Duarte A and Ferreira M-JU: Antibacterial activity of some African medicinal plants used traditionally against infectious diseases. Pharmaceut Biol 2012, 50: 481-489.
39. Hannah O. Oladipo and Shehu RA: Phytochemical and antibacterial screening of selected medicinal plants used in the treatment of sexually transmitted diseases in rural areas of Abuja and Sokoto town. International Congress on Bacteriology and Infectious Diseases 2013; 4(4): 215.
40. Henson S, Milot BELS, John Neustadt ND, Oliff HS, Marissa Oppel MS, Cathleen Rapp ND and Webb D: Antimicrobial activity and toxicity of South African plant compounds in sexually transmitted diseases. Journal Ethnopharmacol 2005; 96: 515-519.
41. Vermani K and Garg S: Herbal medicines for sexually transmitted diseases and AIDS. J of Ethnopharmacology 2002; 80: 49-66.
42. Tumpa SI, Iqbal HM and Ishika T: Ethnomedicinal uses of herbs by indigenous medicine practitioners of Jhenaidah district, Bangladesh. Journal of Pharmacognosy and Phytochemistry 2014; 3(2): 23-33.
43. Rahmatullah M, Mollik AH and Ali M: An Ethnomedicinal Survey of Vitbilia Village in Sujanagar Sub-District of Pabna District, Bangladesh. American-Eurasian J Agric & Environ Sci 2011; 10(1): 106-111.
44. Semenya SS and Potgieter MJ: Ethnobotanical survey of medicinal plants used by Bapedi traditional healers to treat erectile dysfunction in the Limpopo Province, South Africa. Journal of Medicinal Plants Research 2013; 7(7): 349-357.
45. Maroyi A: Traditional use of medicinal plants in south-central Zimbabwe: review and perspectives. Journal of Ethnobiology and Ethnomedicine 2013; 9(31): 1-18.

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