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Original Research Article

Medicinal Plants Used in the Treatment of Pregnancy Related Problems in Sokoto State, Nigeria

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ABSTRACT

The use of plants during pregnancy is a common practice in Africa. In Nigeria, despite modern medical antenatal prescriptions, most women resort to traditional medicine to ensure fetal development and safe delivery. Yet, there is a scanty botanical data on the plants used. There is need to document these plants used by pregnant women in order to offer integrated antenatal care and identify potential interactions or contraindications. This study was carried out to document the medicinal plants used traditionally in the treatment of pregnancy related problems within Sokoto metropolis. A semi structured questionnaire was administered to Traditional healers, Traditional Birth Attendants and Herb Sellers. A total of 70 respondents were interviewed, majority of these respondents were Traditional Birth Attendants (52.9%) and females (77.14%). Over seventy-four percent had practiced for more than 10 years and majority (76.2%) were above 50 years of age. A total of 25 species of medicinal plants, belonging to 16 families were recorded with the Fabaceae family having the highest number of species, followed by the Combretaceae and Capparaceae. Leaf (44.9%) was the most common plant part used and decoction (44%) was the most common method of preparation of the medicines. Most of the herbs are administered orally (94.3.7%). *Celosia laxa* had the highest Relative Frequency of Citation (RFC) while *Acacia nilotica* had the highest Fidelity Level (FL) and RFC combination and can be said to be the most important plant in this study. Scientific validation of the biological properties of the surveyed plants is recommended.

Keywords: Pregnancy, Medicinal plants, Treatment, Sokoto.

Introduction

The use of plants and herbs for different ailments and purposes including pregnancy related ailments is as old as the existence of man himself. Every human community has responded to the challenges of illness and diseases by developing a medical system of care peculiar to their culture and beliefs, with all of them sharing a common attribute "usage of plants". Traditional medicine practice has continued to evolve with different levels of articulations all over the world. The World Health Organisation estimated that 80% of the emerging population of the world relies on traditional medicine.[1] This use of herbal medicines cuts across both industralised and developing countries where their use is rampart.[2-4]

Pregnancy is associated with some discomforts and is a potentially vulnerable time for both mother and fetus.[5] Several studies had shown the widespread use of medicinal plants to treat or ameliorate pregnancy related health needs.[6,7] The high usage of traditional medicines has been attributed to accessibility, affordability, availability and acceptability by the people especially in the developing countries.[8] However, knowledge about the types of plants used and the extent of their use is not available for most part of the world especially in developing countries.

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A prevalence of 57% was reported for herbal medicine use among pregnant women in the United Kingdom.[9] Also, a high percentage of women, most of whom are from the developing countries, have been reported to use herbal medicines during pregnancy.[10] Studies conducted in Nigeria from three geopolitical zones revealed that almost 70% of pregnant women had used herbal medicine in the crude form.[11]

The concomitant use of herbal medicines and orthodox medicines are often without the knowledge of the healthcare professionals.[12,13] There are concerns about the safety and possible interactions of these combinations and even contraindications to some of these herbal products used by pregnant women,[14] especially that they may pose higher risk to the fetus and to the mother. It is therefore important that the plants used by pregnant women are known in order to identify potentially toxic substances about these plants and also to preserve valuable information about the plants if any, for future benefits in women's reproductive health.

Documenting the medicinal flora and the traditional knowledge of local communities on indigenous plants used during pregnancy in this setting would provide baseline information that would aid the devising conservation strategies and also serve as a lead to pharmacological studies aimed at isolating additional compounds that could be useful for providing new drugs. This study therefore attempts to document the medicinal plants used for maternal healthcare in Sokoto metropolis, North-west Nigeria.

Materials and Methods

Study Area

This study was conducted in Sokoto metropolis of Sokoto state from August to October 2017. Sokoto state is in the North-west zone of Nigeria with its capital as Sokoto.The state is bordered to the North by

the republic of Niger, to the south and west by Kebbi state and to the east by Zamfara state. Sokoto metropolis comprises of Sokoto north, Sokoto south, kware, Wamako and Dange – Shuni local government areas.[15] The health facilities in the metropolis comprises of primary, secondary and tertiary. The primary consists of Health Posts, Dispensaries, Basic Health Clinics and Primary Health Care Centers. Secondary health centers in the metropolis include; the Noma Hospital for maxillofacial surgery and Maryam Abacha women and children hospital. There are two tertiary health institutions in the state; the Usmanu Danfodiyo University Teaching Hospital Sokoto and the Specialist Hospital Sokoto. In addition, there are a number of private clinics and primary health centers rendering health services to the community within the metropolis.

Study design and Population
This study is a community-based cross-sectional descriptive study. The study population included herb sellers, traditional medical practitioners and traditional birth attendants within Sokoto metropolis.

Data Collection
All data were collected verbally using an interviewer administered semi-structured questionnaire. The questionnaire consists of two (2) sections as follows;

Section A: Questions on Socio-demographic data
Section B: Questions on the identification of plants (such as names of plants, indication for use, parts used and modes of administration).

Interview was conducted in Hausa language using the validated pre-translated semi-structured questionnaire. Each respondent was interviewed privately to ensure confidentiality.

Data analysis
Data were entered into Microsoft excel. Descriptive statistical method such as frequencies and percentages were used to analyse the social demographic data of respondents and the information on ethnobotanical survey was analysed using the relative frequency of citation (RFC) and Fidelity level (FL).

Relative Frequency of Citation (RFC)
This was calculated to determine the relative importance of a particular species. This value was determined using the formulae: $RFC = Fc/N$
Where Fc is the number of respondents who cited a particular species and N is the total number of the respondents.

Fidelity Level (FL)
This is an index used to determine the relative healing potential of each medicinal plant against a particular ailment and was calculated using the formula: $FL = Np/N \times 100$
Where Np is the frequency of citation of a particular species for a particular ailment and N is the total number of citations of that species.

Results and Discussion

A total of seventy (70) respondents were interviewed. The majority of the respondents (52.9%) were traditional birth attendants while traditional healers and herb sellers comprised of 22.9% and 2.9%, respectively. A total of 21.3% reported to combine the three specialties. Out of the 70 traditional medicine practitioners interviewed, well above half (77.1%) were females. The majority (74.3%) had practiced for about 10years and the majority (76.2%) were above 50 years of age. The demographic characteristics of respondents are summarized in Table 1.
Table 2 is a list of the 25 plants reported to be used to treat pregnancy related problems in this study. The plant family, Fabaceae had the highest frequency followed by Combretacaea and Capparacaea (Figure 1). The most commonly used parts of the plants were leaves (44.9%), stem bark (23.5%), root bark (15.9%) and roots (10.1%), with the fruits (2.80%), bulb (1.4%) and pods (1.40%) being least commonly used (Figure 2). The mode of preparation was mostly by decoction (44%), followed by maceration (24%) and powder (20%). Infusion (8%) and ointment (4%) are sparingly used (Figure 3). The route of administration was basically oral (94. 3%) with topical administration being 5.7% (Figure 4).

This study is an attempt to document the medicinal herbs used to treat pregnancy related problems by traditional healers, herb sellers and traditional birth attendants in Sokoto metropolis. In this study, most of the respondents being females is in agreement with the findings reported in an ethnobiological study of traditional medicines used for women's health in Oyo state, Nigeria[16] and that reported in a similar survey in Katsina state, Nigeria.[17] A very large percentage of the respondents being greater than 50years of age shows that people of old age are the main custodians of traditional knowledge. This however poses a serious threat to the indigenous knowledge because it may eventually be lost following the demise of the older generation. This was similar to the 66.5% reported by Fakeye.[18] A total of 25 plant species distributed among 16 families are used to treat various illness associated with pregnancy in this study. The family Fabaceae being the dominant family was similarly reported for women's healthcare in Southeast Asia.[19] A similar review by Steenkamp[20] revealed that most plant species used for gynecological complaints in South Africa belong to the Fabaceae family. Also, Euphorbiaceae, Asteraceae and Fabaceae were reported the most frequently used families for the treatment of gynecological and obstetrics disorders in northern Maputaland, South Africa.[21] It is however in contrast with that in Tana River County, Kenya where Euphobiaceae is the most frequently used family for the management of women's reproductive health.[22] Also, Poaceae and Caesalpiniaceae were the dominant plant families used for women's health in Oyo state, Nigeria.[16] The high occurrence of the family Fabaceae could be due to the fact that most species belonging to this family are found throughout the seasons because they can withstand the adverse effects of Sahel regions.[17]Leaves were the most frequently used plant part identified in this study, followed by the stem bark, root bark and root . The leaves were also the most used plant part by pregnant women in Mali [23]and in Menoua division-West Cameroon.[24] This is however not in agreement with the findings reported by Steenkamp[20] and Shrivastava[25] who found that roots were the most frequently used plant part for the management of gynecological problems in South Africa and in Dindori district of Madhya Pradesh, India respectively. The frequent use of leaves identified in this study may be explained by the fact that leaves are the site of photosynthesis and therefore the repository of most secondary metabolites. Although the use of leaves may seem less dangerous to the plants' biodiversity than the use of barks or whole plants, it can also contribute to the effect of global warming by reducing the carbon dioxide uptake and oxygen production. Decoctions' being the most common methods of preparation agrees with earlier reports.[26]
Although most of the species recorded in this study have been reported to have one or more biological properties, only a very few of these plants were previously reported to be used for maternal healthcare. For example, *Vernonia amygdalina* (Family: Compositae), is a medicinal plant that is widely reported to be used for maternal and other women reproductive healthcare in the treatment of nausea and vomiting.[23,25] *Guiera senegalensis* (Family: Combretaceae), *Parkia biglobosa* (Family:Fabaceae), *Anogeissus leiocarpa* (Family: Combretaceae) and *Combretum micranthum* (Family: Combretaceae) were also among the commonly reported medicinal plants used by pregnant women in Mali[23] while *Allium sativum* (Family: Amaryllidaceae) was also reported to be used by pregnant women in Palestine to treat cold and fever.[27]
The Relative Frequency of Citation shows the local importance of each species. *Celosia laxa* had the highest Relative Frequency of Citation. The RFC positions correspond with the fact that this plant was reported by high number of informants, hence, *Celosia laxa* is the most popular plant recorded for use in pregnancy in this study. The Fidelity Level of plants used in many categories of ailments in this study was high, with 6 out of the 25 plants showing 100% FL and were mostly used for treating nausea and vomiting, fever, diarrhea, postpartum healing and to relief pain. Some studies[8,17] have also reported the use of these plants for similar ailments.
In this study, *Acacia nilotica* (Family: Fabaceae) had the highest FL and RFC combination (0.09/ 100%), therefore, can be said to be the most important plant in this study. *Acacia nilotica* was reported to be used for post-partum healing and was the only plant mentioned for that purpose in our study and previous studies have evaluated the biological activities of *A. nilotica* pods for healing of postpartum wounds.[28,29]

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Table 1: Socio-demographic Characteristics of Respondents.

Bio-data	Frequency	Percentage (%)
Sex		
Male	16	22.9
Female	54	77.1
Age		
30-39	1	1.2
40-49	16	22.6
50-59	36	51.9
>60	17	24.3
Duration of Practice		
1-10years	38	54.3
11-20 years	14	20.0
>21 years	18	25.7
Specialty		
Traditional Healers (TH)	2	2.9
Herb sellers (HS)	16	22.9
Traditional Birth Attendance (TBA)	37	52.9
All of the above (TH, HS, TBA)	15	21.3

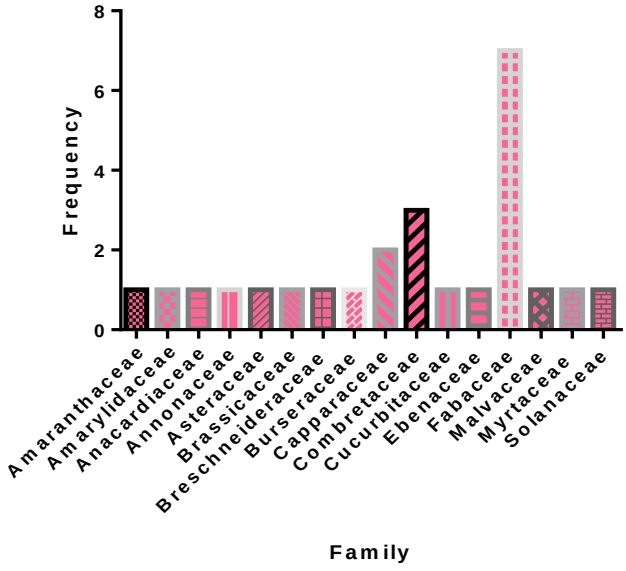

Figure 1: Distribution of plants used in pregnancy by families.

Conclusion

This study demonstrated that many plants species play important role in maintenance of pregnancy and treatment of various ailments associated with pregnancy and that the knowledge of traditional medicine is still utilized and plays a significant role in healthcare management. However, more detailed scientific studies are needed to evaluate the efficacy and safety of these plants. The information gained on frequently used plants might serve as a lead to identifying and isolating compounds that could be useful for providing new drugs.

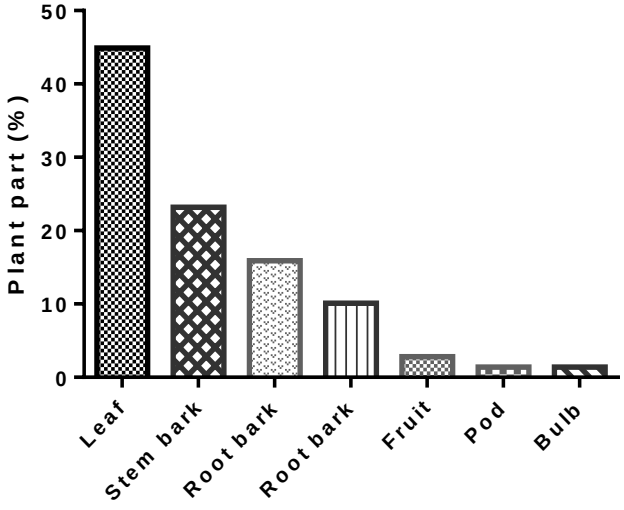

Figure 2: Plant part distribution of herbs used in pregnancy.

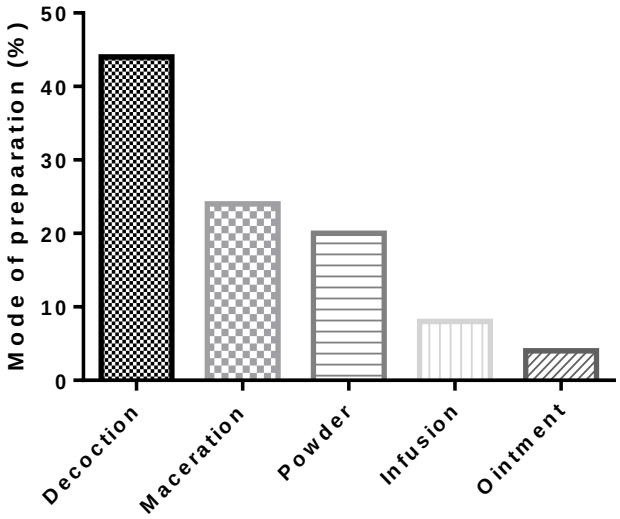

Figure 3: Mode of preparation of plants used in pregnancy.

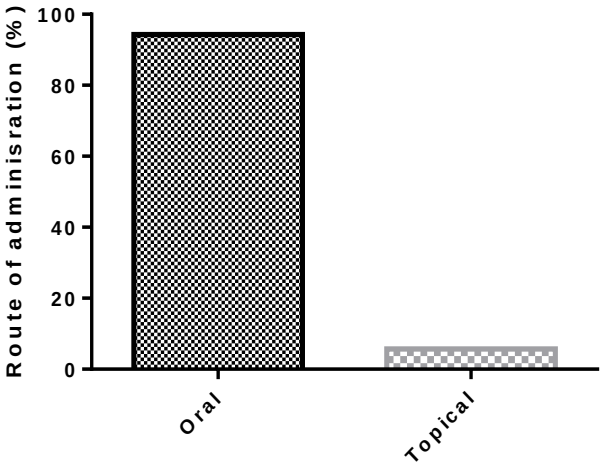

Figure 4: Route of administration of plants used in pregnancy.

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Table 2: List of the plants used to treat pregnancy related problems in Sokoto.

S\N	Botanical Names	Family Name	Local Name	Plant Part	Preparation	Mode of Administration	Indication	RFC	FL (%)
1	*Acacia nilotica*	Fabaceae	Bagaruwa (H)	P	Decoction	Oral	Cleansing of fetus and uterus, postpartum healing	0.09	100
2	*Anastatica hierochuntica*	Brassicaceae	Hannun Fatima (H)	R	Decoction	Oral	To ease labor	0.04	26
3	*Anogeissus leiocarpus*	Combretaceae	Gangamau (H)	RB	Decoction	Oral	To relief pain and swelling	0.01	33
4	*Allium sativum*	Amaryllidaceae	Tafarnuwa (H)	B	Powder	Oral	For cold	0.04	26
5	*Boscia senegalensis*	Capparaceae	Anza (H)	L	Maceration	Topical	To relieve pain and swelling	0.03	28
6	*Boswella daizelii*	Burseaceae	Hano (H)	L	Powder	Oral	Haemorrhiod	0.01	33
7	*Cassia singueana*	Fabaceae	Runhu (H)	SB	Maceration	Oral	Prevent miscarriage	0.03	44
8	*Cassia tora*	Fabaceae	Tafasa (H)	L	Powder	Oral	To ease labour	0.03	26
9	*Carica papaya*	Caricaceae	Gwanda (H)	L	Maceration	Oral	Malaria fever	0.03	28
10	*Celosia laxa*	Amaranthaceae	Nannaha (H)	SB	Infusion	Oral	To ease labour	0.1	5
11	*Combretum micrathum*	Capparaceae	Anza (H)	L	Decoction	Topical	To relieve pain and swelling	0.86	44
12	*Diospysme spiliforms*	Combretaceae	Kanya (H)	L	Powder	Oral	Breast milk enhancer	0.01	14
13	*Enantia chlorantha*	Annonaceae	Awupa (Y)	SB	Maceration	Oral	Malaria	0.01	1.4
14	*Guiera senegalensis*	Combretaceae	Sabara (H)	L	Maceration	Oral	Nausea and vomiting	0.03	33
15	*Hibiscus sabdarifa*	Malvaceae	Zoborodo (H)	F	Infusion	Oral	Laxative, Clean fetus	0.09	71
16	*Khaya senegalensis*	Meliaceae	Madachi (H)	SB	Maceration	Oral	Use as Tonic	0.09	7.1
17	*Mangifera indica*	Anacardiaceae	Mangwaro (H)	B	Maceration	Oral	Use as tonic	0.03	100
18	*Momordica balsamina*	Cucurbitaceae	Garahumi	L	Ointment	Topical	Pain reliever	0.43	100
19	*Parkia biglobosa*	Fabaceae	Darawa	B	Decoction	Oral	Hypertension and breast milk enhancer	0.01	33
20	*Psidium guajava*	Myrtaceae	Gwada	L	Maceration	Oral	Fever	0.03	57
21	*Pterocarpus erinaceus*	Fabaceae	Madobihia	SB	Maceration	Oral	Malaria	0.03	100
22	*Schwenkia Americana*	Solanaceae	Dandana	L	Decoction	Oral	Diarrhea	0.01	100
23	*Senna obtusifolia*	Fabaceae	Tafasa	L	Powder	Oral	Safe delivery	0.03	100
24	*Tamarindus indica*	Fabaceae	Tsamiya	P	Maceration	Oral	Cleanse fetus	0.03	66
25	*Vernonia amagdalina*	Asteraceae	Shuwaka	L	Maceration	Oral	Nausea and vomiting	0.03	33

B- Bark, Bu- Bulb, F- Flower, H- Hausa, L- Leaf, P- Pod, SB- Stem Bark.

Conflict of interest

The authors declare no conflict of interest.

Author's Declaration

The author hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by him.

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References

1. World Health Organization. Traditional medicine strategy 2002-2005. WHO/EDM/TRM/2002. Geneva.
2. Gardiner P, Graham R, Legedza AT, Ahn AC, Eisenberg DM, Phillips RS. Factors associated with herbal therapy use by adults in the United States. Alternative Ther Health Med. 2007; 13(2): 22-29.
3. Ernst E. Herbal medicines put into context: their use entails risks, but probably fewer than with synthetic drugs. BMJ. 2003; 327(7420): 881-882.
4. Furnham A. Why do people choose and use complementary therapies? In: Ernst E, ed. Complementary medicine, an objective appraisal. Oxford: Butterworth Heinemann. 1998. 71-88 p.
5. Louik C, Gardiner P, Kelley K, Mitchell AA. Use of herbal treatments in pregnancy. Am J Obstet Gynecol. 2010; 202(5):439.e1-439.e10.
6. Kametenesi-Mugisha M, Oryem-Origa H. Medicinal plants used to induce labour during childbirth in Western Uganda. J Ethnopharmacol. 2007: 109:1-9.
7. Varga CA and Veale DJH. Isihlambezo: utilization patterns and potential health effects of pregnancy related traditional health medicine. Soc Sci Med. 1997; 44:911-924.
8. Tamuno I. Traditional medicine for HIV infected patients in antiretroviral therapy in a tertiary hospital in Kano, Northwest Nigeria. Asian Pac J Trop Med. 2011; 4(2):152-155.
9. Holst L, Wright D, Haavik S, Nordeng H. Safety and efficacy of herbal remedies in obstetrics—review and clinical implications. Midwifery 2011; 27(1):80-86.
10. Wambebe C. Regulatory framework for local production of herbal medicines in Africa. Bol Latinoam Caribe Plant Med Aromat. 2009; 8(1):2–6.
11. Fakeye TO, Adisa R, Musa IE. Attitude and use of herbal medicines among pregnant women in Nigeria. BMC Complement Altern Med. 2009; 9:53-59.
12. Langloid- Klassen D, Kipp W, Jahngri GS, Rubaale J. Use of traditional medicine by AIDS patients in Kabarole District, Western, Uganda. Ann J Trop Med Hyg. 2007; 77(4):757-763.
13. Addo J, SmeethL, Leon DA. Hypertension in Sub- Saharan Africa; a systematic review. Epub. 2007; 50(6):1012-1018.
14. Tamuno I, Omole-Ohonsi A, Fakere J. Use of Herbal Medicine among Pregnant Women Attending a Tertiary hospital in northern Nigeria. The Internet J Gynec Obst. 2011; 5(2):1-8.
15. Sokoto Urban and Regional Planning Board (SURPB). Ministry of Urban and Physical planning. 2012.
16. Borokini TI, Ighere DA, Clement M. Ethnobiological survey of Traditional Medicine Practice for Women's Health in Oyo state. J Med Plants Stud. 2013; 1(5):17-29.
17. Kankara SS, Ibrahim MH, Mustafa M, Go R. Ethnobotanical survey of medicinal plants used for traditional maternal healthcare in Katsina state, Nigeria. S Afr J Bot. 2015; 97:165-175.
18. Fakeye TO, Adisa R, Musa IE. Attitude and use of herbal medicines among pregnant women in Nigeria. BMC Comp Altern Med. 2009; 9(1):53.
19. De Boer HJ and Cotingting C. Medicinal plants for women's healthcare in Southeast Asia: a meta-analysis of their traditional use, chemical constituents, and pharmacology. J Ethnopharmacol. 2014; 151(2):747-767.
20. Steenkamp V. Traditional herbal remedies used by South African women for gynaecological complaints. J Ethnopharmacol. 2003; 86:97–108.
21. De Wet H and Ngubane SC. Traditional herbal remedies used by women in a rural community in northern Maputaland (South Africa) for the treatment of gynaecology and obstetrics complaints. S Afr J Bot. 2014; 94:129-139.
22. Kaingu CK, Oduma JA, Mbaria JM, Kiama SG. Medicinal plants traditionally used for the management of female reproductive health dysfunction in Tana River County, Kenya. Tang [humanitas medicine]. 2013; 3(2):17-26.
23. Nordeng H, Al-Zayadi W, Diallo D, Ballo N, Paulsen BS. Traditional medicine practitioners' knowledge and views on treatment of pregnant women in three regions of Mali. J Ethnobiol Ethnomed. 2013; 9(1):67.
24. Yemele MD, Telefo PB, Lienou LL, Tagne SR, Fodouop CS, Goka CS, Lemfack MC, Moundipa FP. Ethnobotanical survey of medicinal plants used for pregnant women′ s health conditions in Menoua division-West Cameroon. J Ethnopharmacol. 2015; 160:14-31.
25. Shrivastava A. Ethnomedicinal plants used for treatment of gynecological disorders by tribal of Dindori district of Madhya Pradesh. IJPLS 2013; 4(12):3185-3189.
26. Abdillahi HS and Van Staden J. Application of medicinal plants in maternal healthcare and infertility: A South African perspective. Planta Med. 2013; 79(7):591-599.
27. Jaradat N and Adawi D. Use of herbal medicines during pregnancy in a group of Palestinian women. J Ethnopharmacol. 2013;150(1):79-84.
28. Roozbeh N and Darvish L. *Acacia nilotica*: new plant for help in pelvic organ prolapse. J Menopausal Med. 2016; 22(3):129-130.
29. Kankara S, Sani D, Mustafa M, Ibrahim M, Go R. *Acacia nilotica* pods'water extract enhances wound healing in Sprague-Dawley rats by alleviating oxidative stress and suppressing pro-inflammatory cytokines. NJSR. 2017; 16(2):202-210.