



Traditional herbal remedies used by women in a rural community in northern Maputaland (South Africa) for the treatment of gynaecology and obstetric complaints

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ABSTRACT

According to the World Health Organization, there are annually 350,000 maternal deaths in sub-Saharan Africa, with obstetric haemorrhage the most common cause of death. Although maternal mortality can be reduced by health-care interventions such as the provision of family planning, maternity care and access to safe abortion practice, it is not happening in rural areas. Previous studies in a rural community in northern Maputaland had indicated the importance of medicinal plants in their primary health care-system. However, no survey has been done in this region to document the medicinal plants used to treat various gynaecological and obstetric problems. The aim of this study was to conduct an ethnobotanical survey, focussing on lay people's knowledge on plants used to treat gynaecological and obstetric complaints. A total of 70 lay people (all female) were purposively interviewed using structured questionnaires. The focus was on plants used for the treatment of gynaecological and obstetric conditions and information was collected regarding vernacular plant names, plant parts used, preparation and application methods. Thirty two plant species from 21 families were recorded for the treatment of 19 different gynaecological and obstetric disorders. When searching the most frequently used scientific databases (ScienceDirect, Scopus and Pubmed), 16 plant species (*Acacia burkei*, *Acanthospermum glabratum*, *Commiphora neglecta*, *Crotalaria monteiroi* var. *galpinii*, *Cyperus natalensis*, *Doispyros villosa*, *Erythrina humeana*, *Hermannia boraginiflora*, *Hypoxis* cf. *longifolia*, *Opuntia stricta*, *Ozoroa engleri*, *Ranunculus multifidus*, *Sapium integerrimum*, *Searsia nebulosa*, *Senecio deltoideus*, *Senecio serratuloides*) were found to be recorded for the first time in literature to treat gynaecological and obstetric disorders, and twelve new Zulu vernacular names were documented. The three most treated gynaecological conditions were dysmenorrhoea by 21 plant species, infertility (14 species) and menorrhagia (10 species), whereas blood purification (14 species), to ease labour (9 species) and to induce abortion (2 species) were the most mentioned for obstetric conditions. *Bridelia cathartica* was the most cited plant species (18 times) for treating both gynaecological and obstetric problems. The modes of plant preparations were mostly concoctions which were taken orally. This wealth of new knowledge gained with the current survey reinforces the importance of documenting lay people's indigenous medicinal plant knowledge in rural communities. Results also strongly suggest that the availability of plants is not the only criteria for usage; cultural influence may play a pertinent role in the choice of plant species. Literature indicates that there is very little research done on assessing the safety and efficacy of botanical remedies taken during pregnancy and lactation. Pregnant women should therefore be made aware of the risks they take when consuming herbal remedies.

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1. Introduction

In developing countries, pregnancy and childbearing have been major contributors to death and disability amongst women. Thus a woman in Africa may face death during pregnancy and the mortality rate of children during birth is as high as one in 26, compared with only one death in 7300 births in developed countries (WHO, 2009). In

South Africa the maternal mortality is 300 deaths per 100,000 live births as estimated in 2010 by the WHO (2013). Pregnancy and childbirth deaths can be reduced by health-care interventions such as the provision of family planning and maternity care and access to safe abortion practices. According to WHO (2009), the poorer and less educated women and those living in rural areas are far less likely to give birth in the presence of a skilled health worker than better educated women who live in wealthier households or urban areas. Reasons for this include distance and expenses to reach health-care centres, but also inappropriate sociocultural practices. Another maternal health problem causing significant proportions of deaths is unsafe abortions. In

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sub-Saharan Africa, which has the highest burden of ill-health and death from unsafe abortion, one in four unsafe abortions is amongst adolescents 15–19 years of age (WHO, 2009). The WHO Director-General, Dr Margaret Chan (WHO, 2014), calls for urgent action from the health sectors to “free women” by ensuring they have access to all the health-care facilities they need, including sexual and reproductive health services. She states that 80% of health-care in the world is almost always provided by women in their homes and mostly in the form of traditional medicine/remedies. The WHO (2000) defines traditional medicine (TM) as “the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness”. Traditional medicine has been used for thousands of years with great contributions made by primary health-care providers at the community level. Traditional and alternative remedies play an important role in the lives of people in developing countries where more than one-third of the population lack access to essential medicines. One way to increase the health-care in these communities is to integrate safe and effective traditional medicine into the formal health system (WHO, 2000).

Many studies have been done on the traditional treatments of various gynaecological and obstetric problems around the world (Michel et al., 2007; Coe, 2008; Panyaphu et al., 2011; Srithi et al., 2012; Torri, 2013). In northern Thailand, for example, a study on women's health-care revealed that medicinal plants (28 plant species) were regularly used for the treatment of dysmenorrhoea (menstrual cramps) and amenorrhoea (absence of menstrual period), followed by the relieving of morning sickness in pregnant women and for promoting foetal stabilization (Srithi et al., 2012). Another gynaecological problem is infertility in women, which is a major problem in the developing world. Central and southern Africa has the world's highest rates of infertility (30%) (WHO, 2009). Infertility almost always leads to decreased levels of personal well-being and it constitutes a serious burden for the socio-economic development of many African nations. In Cameroon, with a rate of approximately 25% of infertile women, a survey documented 46 plant species which are used to treat infertility (Telefo et al., 2011). Conversely, socio-economic conditions have led many women to seek for abortion. Where abortion is still prohibited and illegal, women use plant preparations to induce abortion. At the same time, in areas where abortion is legalized, some women still prefer to use traditional preparations to protect their privacy by not going to public gynaecological centres. In Tanzania's rural areas 45% of women seeking abortion have used plants to induce abortion (Nikolajsen et al., 2011). Twenty one plant species are known by Traditional Birth Attendants in Tanzania to induce abortion (Nikolajsen et al., 2011). Most of the above studies acquired their data from Midwives, Traditional Birth Attendants, Traditional Healers and Key Informants; very few studies recorded the knowledge of lay people on gynaecological and obstetric treatments.

Approximately 43% women in the rural areas in South Africa are still practising the full spectrum of traditional precautionary and curative interventions with herbal remedies (Van Wyk and Gericke, 2000). For this, a wide spectrum of plants are used to enhance fertility, regulate the menstrual cycle, treat infection and pain, maintain pregnancy, tone the uterus, initiate and augment labour, expel a retained placenta, stimulate breast milk secretion and ameliorate menopausal symptoms. According to Chinsamy et al. (2011), although traditional medicine is widely practised in South Africa there is not much documented about therapeutic uses, preparations and administration methods. Information about the use of medicinal plants is usually communicated orally from generation to generation. This information is at high risk of disappearing (Giday et al., 2003). The knowledge is being lost from one generation to the other because of acculturation and the high rate of habitat destruction (Thring and Weitz, 2006; Namukobe et al., 2011). For these reasons the use of medicinal plants needed to be documented to preserve this information (Rokaya et al., 2010). Most South

African studies focus on the information obtained from traditional healers and from desk top studies. There are very few surveys done of lay people's knowledge on their use of medicinal plants, and the important role it plays in the primary health care of their families (De Wet et al., 2010, 2012, 2013; York et al., 2011). Hardly any surveys have been done in South Africa on “women's health” problems, although Steenkamp (2003) has done a thorough literature review on traditional herbal remedies used by South African women for gynaecological complaints. Based on this literature review, 156 plant species were documented as being used by traditional healers in South Africa to treat gynaecological conditions and disorders. The aim of the current survey is to record the knowledge that lay people living in a rural area in northern KwaZulu-Natal have on medicinal plants for the treatment of gynaecological and obstetric problems.

2. Materials and methods

2.1. Study area

The study area in northern Maputaland is the same as described by De Wet et al. (2013) (Fig. 1). Northern Maputaland (Umhlabuyalingana municipality zone) is a very economically deprived area with approximately 44.9% of the population (total population of 163,694 people) not having a formal income (Umhlabuyalingana Municipality IDP, 2012). Although about 52% of the population is economically active, only 3% are receiving an income that is more than R1600 per month ($\pm 147\$, \$1 = R10.89$). This is presumably because only 8% of the population have completed grade 12, while only 2% have obtained a tertiary education, and for other reasons such as lack of formal jobs (Umhlabuyalingana Municipality IDP, 2012).

Maputaland has a high concentration of plant endemism and consists of a variety of vegetation types. The targeted areas for this study are dominated by four different types of vegetation: Maputaland Wooded Grassland (Kwajozana), The Maputaland Coastal Belt Vegetation (Mseleni), the Tembe Sandy Bushveld (Tshongwe) and the Northern Coastal Forest (Mabibi) (Mucina et al., 2005). It is therefore expected that a high diversity of medicinal plant species will be used, as previously reported from this area (De Wet et al., 2010, 2012, 2013; York et al., 2011).

2.2. Ethnobotanical data collection

The survey for this study was conducted during April 2013. Ethical clearance (UZREC171110-030 Dept. 2013/32) was obtained from the University of Zululand's Ethical Committee before the onset of the survey. Seventy homesteads were visited; 20 each from the following

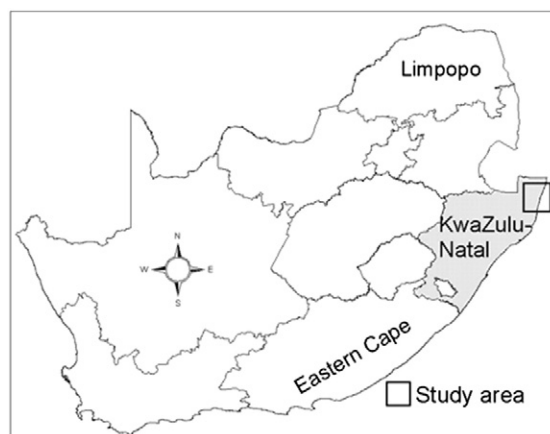


Fig. 1. Study area — northern Maputaland located in KwaZulu-Natal province, South Africa.

areas: Tshongwe, Mseleni and Kwajozana, and 10 in the Mabibi area. The homesteads were purposively selected, and specific homestead locations were recorded using the Global Positioning System (GPS). Objectives of the study were explained to each interviewee in Zulu (the dominant local language). These objectives were also presented in the form of consent that was signed by the informants. A structured questionnaire was used to obtain information including: socio-demographic information of all informants such as names, ages, genders and educational backgrounds; particulars of the area; vernacular names of plants used to treat gynaecological and obstetric problems; the problems or symptoms treated by plant(s); preparation, dosage and administration of plant extracts.

2.3. Plant collection and identification

Reported plants were collected for identification and voucher specimens were prepared *in situ* and deposited in the herbarium of the Botany Department of the University of Zululand. Identification of the plant species were done by Dr THC Mostert (Botany Department, University of Zululand) and Mr Mkhophene Ngwenya from the South African National Biodiversity Institute KwaZulu-Natal Herbarium.

3. Results and discussion

3.1. Socio-demographic information

Seventy people were interviewed (all female). The ages of the respondents ranged from 16 to 81 years with the majority (51%) over 50 years of age. People from the last mentioned age group (≥ 50 years) were more available for the interviews because most of them were looking after young children while the rest of the family members were either attending school or working elsewhere. Men in the presence of the interviews did not respond, claiming that they do not have any information, since the ailments of concern are of “a female nature”. Sixty percent of the respondents have received some form of education, whereas 40% were illiterate. Amongst those that had received some form of education, 26% received primary education, and from the 34% that progressed to a secondary education, only 13% have obtained the National Senior Certificate (Grade 12).

In total, 80% of the interviewed people have specific information on plants used to treat gynaecological and obstetric problems. Sixteen percent have no information on this specific topic, while four percent have no medicinal plant knowledge at all. The last mentioned group claimed that their religious beliefs do not allow them to be involved in any indigenous herbal treatments. Forty four percent of the respondents in this study claim to have obtained their knowledge of medicinal plants from their parents, particularly their mothers (35%), whereas 9% obtained their knowledge from their fathers. Twenty one percent obtained their knowledge from their grandparents (with 19% from the grandmothers and 2% from grandfathers). Four percent mentioned that they obtained information from traditional healers that they visited for treatment of ailments. Only 5% reported that their information on medicinal plants was given to them by their ancestors through dreams. Other information sources mentioned (5%) are their in-laws, sisters and friends. Females play an important role in the transmission of indigenous knowledge to the next generation, as seen in this survey. The interviewees reported that the reason they have information about medicinal plants is because they grew up using herbal medicine rather than “allopathic forms” of medicine. The majority reported that the plants they used for “women problems” were introduced to them when they were teenagers entering puberty, when they had some gynaecological complaints, especially those related to menstruation. Plants related to pregnancy were mostly given to the respondents when they become pregnant. Sixty nine percent of the respondents claimed that they pass their medicinal plant knowledge on to their daughters both verbally and through practice. The respondents mentioned three ways that

they use for teaching the younger generation, namely: (i) taking them to the field and teaching them while collecting plants in the wild, (ii) others mentioned that they pick one “clever child” in the family to whom all medicinal plant related information will be passed on; and (iii) some said a good time for passing on information is when they are having an ailment to be treated. In contrast a few respondents reported that they do not pass on information to the next generation because the younger generation is losing interest in traditional medicine and their focus is more on the “western form” of medicine. They also “do not pay attention and tend to forget very easily”. One respondent mentioned that she does not pass on information deliberately to her young ones because she assumes that they learn when she is preparing the medicine in their presence. A previous ethnobotanical survey done in this region by York et al. (2011) mentions that the Zulu people are not well committed to transmitting traditional information to the next generation; they seem to be deviating towards allopathic medicine. This is contradicted by De Wet et al., 2013 who found that traditional herbal knowledge is passed on to the younger generation, although there is no guarantee that they will practise it.

3.2. Plants used for gynaecological and obstetric problems

Thirty two plant species were recorded for the treatment of various gynaecological and obstetric problems (Table 1). Thirty of these plants were mentioned by their Zulu names while two were collected without any vernacular name (*Hermannia boraginiflora* and *Senecio deltoideus*). Twelve new Zulu vernacular names were recorded for the first time in literature, namely: *Unkoshonkoshwana* (*Crotalaria monteiri*), *Isinjelele* (*Euclea natalensis*), *Umnqwambane* (*Searsia nebulosa*), *Umbhonde* (*Commiphora neglecta*), *Ungazini* (*Bridelia cathartica*), *Ubhoyibhoyi* (*Diospyros villosa*), *Isinqonqothwane* (*Grewia occidentalis*), *Umajoya* (*Ochna natalitia*), *Umshongi* and *Ithendengulube* (*Rhoicissus digitata*) and *Udlulabehlezi* (*Sapium integrerrimum*). The Zulu vernacular plant names for the same plant species tend to differ amongst the inhabitants in spite of living in the same area. In the current study, *Bridelia cathartica*, *Euclea natalensis*, *Ochna natalitia* and *Rhoicissus digitata* were given more than one Zulu name (Table 1). A study done in an adjacent region to the current study reported 15 different Zulu names for *Euclea natalensis* (Corrigan et al., 2011). Most of these names are lay people's way to remember specific plant names, for example, *Inkunzemnyama* “black bull”, *Umanyathi* “buffalo”, *Idungamuzi* “family conflict” (Corrigan et al., 2011). Another concern with vernacular names is that different plant species are called by the same vernacular name. For example in the current study, *Erythrina humeana* and *Erythrina lysistemon* Hutch. are both referred to in Zulu as *Umsinsi*. These problems with similar Zulu vernacular names make it impossible to identify the plant by using only its vernacular name. Preparing voucher specimens is thus of utmost importance.

The 32 recorded plant species belong to 21 families of which Euphorbiaceae, Asteraceae and Fabaceae are the most represented families with four species each, followed by Anacardiaceae with three species (Table 1). Kaingu et al. (2011) also reported Euphorbiaceae as the most commonly used plant family for treating pregnancy problems in Kenya. In a literature survey done by Steenkamp (2003), the family Fabaceae was the most represented family for the treatment of “women problems” in South Africa, followed by Asteraceae. In the current survey Ebenaceae and Hypoxidaceae are represented by two species each, and the rest of the 16 families were represented by single species. Sixteen (50%) of the plant species reported in this survey are, for the first time, documented for treatment of any gynaecological and obstetric problems (Table 1). This wealth of new knowledge reinforces the importance of the documentation of lay people's indigenous medicinal plant knowledge in rural communities.

Fig. 2 shows the number of plant species that were reported by the interviewees to treat five gynaecological problems and the number of plant species used for each condition. These different conditions can

Table 1
Medicinal plants used in a rural community in northern Maputaland to treat gynaecological and obstetric disorders.

Botanical name and voucher number	Family	Zulu name given by interviewees	Plant part used	Number of times quoted	Method of preparation and administration	Other reported uses for gynaecological and obstetric disorders
<i>Acacia burkei</i> Benth. (SC Ngubane 26)	Fabaceae (<i>sensu lato</i>)	Umkhaya	Bark	1	Dried bark is burnt to ashes and a handful of ash is poured into 1 L of water and shake. The suspension is allowed to sediment and half a cup (± 125 mL) of the supernatant is taken orally twice a day to ease labour and labour pain, activity may be enhanced by rectal administration of the remaining medicine (enema).	None is found in the literature.
<i>Acalypha villicaulis</i> Hochst. ex A.Rich. (SC Ngubane 14)	Euphorbiaceae	Umphendulo	Root bark	3	(a) Bark from root is stripped and the bark is chopped. A handful of fresh root bark is boiled in 1 L of water for 15 min, cool before straining. Half a cup of the decoction is taken orally three times a day by a woman during her first menstruation (menarche) to shorten her menstruation period and to regulate blood flow for her next consecutive menses; the decoction can be taken twice a day for dysmenorrhoea and during pregnancy to ensure safe pregnancy and an uncomplicated delivery. (b) Chop the peeled root bark and mix with the root of <i>Searsia nebulosa</i> and <i>Bridelia cathartica</i> . Boil three handfuls of mixed plant material in 2 L of water for 1 h, cool before straining. The residue can be dried and re-use. One cup (± 250 mL) is taken twice a day orally to treat dysmenorrhoea or to shorten menstrual period during menarche.	Change foetus gender before birth, prevent conception (Hutchings et al., 1996), abortifacient (Steenkamp, 2003).
<i>Acanthospermum glabratum</i> (DC.) Wild (SC Ngubane 29)	Asteraceae	Isinama	Whole plant	1	One handful of fresh-chopped plant material is boiled in 1 L of water for about 20 min, cool before straining. Half a cup of the decoction is taken orally three times a day to treat cervical pains during pregnancy.	None found in literature.
<i>Bridelia cathartica</i> G.Bertol. (SC Ngubane 18)	Euphorbiaceae	Umkhawulangazi, Ungazini*	Root and leaves	18	(a) Chopped roots of <i>B. cathartica</i> , <i>Tabernaemontana elegans</i> , <i>Erythrina humeana</i> , <i>Ochna natalitia</i> and <i>Searsia nebulosa</i> . Two handfuls of these mixed roots are boiled in 2.5 L of water for 2 h, strain and let cool. One cup of the decoction is taken orally three times a day for dysmenorrhoea and infertility. (b) Roots of <i>Rhoicissus digitata</i> are chopped and mixed with the same amount of chopped roots of <i>B. cathartica</i> and <i>Peltophorum africanum</i> . Four handfuls of the mixed plant material are boiled in 5 L of water for 1 h in a pot with a lid on. Half a cup of the decoction is taken orally two to three times a day (depending on one's preference). This decoction treats dysmenorrhoea and amenorrhoea. (c) Roots are chopped and mixed with the roots of <i>Rhoicissus digitata</i> , <i>Commiphora neglecta</i> , <i>Grewia occidentalis</i> , <i>Ochna natalitia</i> , <i>Garcinia livingstonei</i> and <i>Crotalaria monteiri</i> . A handful of mixed roots is boiled in five cups of water for 20 min, cool before straining. The residue can be dried for re-use. Half a cup of the decoction is taken orally twice a day after a meal to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant. (d) Either chopped roots or leaves are used individually to treat menorrhagia. A handful of chopped plant material is boiled in 1 L of water for ± 15 min, cool before straining. Half a cup is taken orally twice a day. (e) Roots can be mixed with the roots of <i>Searsia nebulosa</i> or <i>Opuntia stricta</i> stem to cleanse the pregnant person's blood. The medicine is prepared by boiling three handfuls of plant material in 1 L of water for half an hour and half a cup of cool strained decoction is taken twice a day. (f) The chopped roots may be mixed with roots of <i>Erythrina humeana</i> , <i>Acalypha villicaulis</i> , <i>Searsia nebulosa</i> , stem of <i>Hyphaene coriacea</i> or roots of <i>Ozoroa engleri</i> for dysmenorrhoea and infertility. Two handfuls of above mixed plant material are boiled in 1 L of water for 30 min, cool before straining. One cup of the decoction is taken thrice a day.	Menorrhagia (Hutchings et al, 1996), infertility (Abdillahi and Van Staden, 2012).
<i>Commiphora neglecta</i> Verdoorn (SC Ngubane 31)	Burseraceae	Umbhonde*	Roots	1	Roots are chopped and mixed with the roots of <i>Rhoicissus digitata</i> , <i>Grewia occidentalis</i> , <i>Bridelia cathartica</i> , <i>Garcinia livingstonei</i> and <i>Crotalaria monteiri</i> and left to dry. A handful of dry mixed plant material is boiled in 5 cups of water for 20 min, cool before straining. The residue can be dried for re-use. Half a cup of the decoction is taken orally twice a day after a meal to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant.	None found in literature.
<i>Crotalaria monteiri</i> Taub. ex Baker f. var. <i>galpinii</i> Burt Davy (SC Ngubane 31)	Fabaceae (<i>sensu lato</i>)	Unkoshonkoshwana*	Roots	1	It is used in combination with <i>Rhoicissus digitata</i> , <i>Grewia occidentalis</i> , <i>Bridelia cathartica</i> , <i>Garcinia livingstonei</i> and <i>Commiphora neglecta</i> as described above (at <i>C. neglecta</i>) to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant.	None found in literature.

<i>Cyperus natalensis</i> Hochst. ex. Krauss (SC Ngubane 32)	Cyperaceae	Induli	Roots	1	Four handfuls of chopped root are boiled in 2 L of water for 30 min, cool before straining. Half a cup of the decoction is taken orally three times a day to treat menorrhagia.	None found in literature.
<i>Doispyros villosa</i> (L.) De Winter var. <i>villosa</i> (SC Ngubane 17)	Ebenaceae	Ubhoyibhoyi*	Roots	1	Half a handful of chopped roots are boiled in 1 L of water until water changes to a brown colour, cool before straining. Half a cup of the decoction is taken orally two to three times a day depending on pains, for dysmenorrhoea.	None found in literature.
<i>Erythrina humeana</i> Spreng. (SC Ngubane 10)	Fabaceae (<i>sensu lato</i>)	Umsinsi	Roots and leaves	5	(a) Two handfuls of chopped root are boiled in 1.5 L of water for about an hour and then cool before straining, half a cup of the decoction is taken orally three times a day for dysmenorrhoea and once a day for infertility. (b) A handful of chopped roots is mixed with the same amount of <i>Ochna natalitia</i> leaves and boiled in one and a half cup of water for ± 30 min and cool. Half a glass of the decoction is taken two to three times a day to treat menorrhagia. (c) Chop two handfuls of root and boil it in 1 L of water for 20 min, strain the cool decoction and dilute with 4 L of water. Use the 5 L dilution for an enema every three days to prevent miscarriage as soon as a person knows she is pregnant.	None is found in the literature.
<i>Euclea natalensis</i> ADC. (SC Ngubane 5)	Ebenaceae	Isinjelele*, Isinzimane	Roots	1	Boil a handful of fresh-chopped roots in two cups of water for 15 min, strain when it is cool and take half a cup orally two to three times a day by a pregnant woman for blood purification.	Infertility (Steenkamp, 2003; Abdillahi and Van Staden, 2013), abortifacient, amenorrhoea, dysmenorrhoea (Steenkamp, 2003).
<i>Flueggea virosa</i> (Wild.) Voigt (SC Ngubane 12)	Euphorbiaceae	Ihlalanyosi	Modified root	1	Two handfuls of pounded root are boiled in 2 L of water for 10 min. The decoction is cool before straining. Half a cup of the decoction is taken orally thrice a day for antepartum haemorrhage and to prevent premature birth.	Dysmenorrhoea, infertility, aphrodisiac (Samuelsson et al., 1992).
<i>Garcinia livingstonei</i> T.Anderson (SC Ngubane 8)	Clusiaceae	Umgobandlovu	Roots	2	(a) Two handfuls of chopped dry or fresh roots are boiled in 2 L of water for 10 min, cool before straining. Half a cup of the decoction is taken orally thrice a day to treat dysmenorrhoea and postpartum haemorrhage. (b) Roots are chopped and mixed with the roots of <i>Rhoicissus digitata</i> <i>Commiphora neglecta</i> , <i>Grewia occidentalis</i> , <i>Bridelia cathartica</i> and <i>Crotalaria monteiroi</i> and dried. A handful of mixed plant material is boiled in 5 cups of water for 20 min, cool before straining. The residue can be dried for re-use. Half a cup of the decoction is taken orally twice a day after a meal to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant.	Postpartum pains, pelvic pains (Samuelsson et al., 1992), contraceptives (Steenkamp, 2003), aphrodisiac (Abdillahi and Van Staden, 2012).
<i>Grewia occidentalis</i> L. (SC Ngubane 16)	Tiliaceae	Isinqonqothwane*	Roots	1	It is used in combination with <i>Rhoicissus digitata</i> , <i>Crotalaria monteiroi</i> , <i>Bridelia cathartica</i> , <i>Garcinia livingstonei</i> and <i>Commiphora neglecta</i> as described above (at C. <i>neglecta</i>) to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant.	Infertility (Steenkamp, 2003); facilitate and procure delivery (Abdillahi and Van Staden, 2013).
<i>Gymnosporia senegalensis</i> Loes. (SC Ngubane 3)	Celastraceae	Isihlangwana	Roots	1	A handful of chopped roots and the same amount of chopped <i>Trichilia emetica</i> bark are mixed and boiled in 1.5 L of water for ± 10 min. The strained warm decoction is used as an enema (using one Size-6 syringe) once every week, to treat infertility.	Infertility (Amusan et al., 2007); prevents abortion, menorrhagia (Hutchings et al., 1996), menorrhagia (Vidyasagar and Prashantkumar, 2007).
<i>Hermannia boraginiflora</i> Hook. (SC Ngubane 27)	Sterculiaceae	–	Roots	1	Two handfuls of fresh-chopped roots are boiled in 2 L of water for ± 30 min, cool before straining. Half a cup is taken orally three times a day to treat dysmenorrhoea and during pregnancy to ease labour.	None found in the literature.
<i>Hyphaene coriacea</i> Gaertn. (SC Ngubane 35)	Arecaceae	Ilala	Stem	8	Fresh stem is pounded and two handfuls of stem material are boiled in 1.5 L of water till the colour of the water change to black after ± 30 min, cool before straining. Half a cup of the decoction is taken orally thrice a day, for dysmenorrhoea, infertility, after birth pains, postpartum bleeding and to ease labour.	Dysmenorrhoea (Steenkamp, 2003).
<i>Hypoxis cf. longifolia</i> Baker (SC Ngubane 30)	Hypoxidaceae	Ilabatheka	Corm	2	Two handfuls of chopped corm are boiled in 1 L of water for 30 min, cool before straining. A cup is taken orally three times a day to treat menorrhagia.	None found in literature.
<i>Hypoxis hemerocallidea</i> Fisch., C.A.Mey. & Avé-Lall. (SC Ngubane 15)	Hypoxidaceae	Inkomfe	Corm	6	(a) It is used in combination with <i>G. senegalensis</i> as described above (at <i>G. senegalensis</i>) to treat infertility. (b) Three handfuls of chopped corm are boiled into 1 L of water for 30–60 min, cool before straining. One cup is taken orally for dysmenorrhagia thrice a day.	Prevents premature abortion and miscarriage (Nyinaumuntu et al., 2008), infertility (Erlwanger and Cooper, 2008).
<i>Kigelia africana</i> (Lam.) Benth. (SC Ngubane 19)	Bignoniaceae	Umvongothi	Bark	3	(a) Three handfuls of evenly mixed chopped bark and fruit are boiled in 2 L of water for 1 h, cool before straining. The decoction is taken orally, half a cup thrice a day for blood cleansing and pelvic pains during pregnancy, or alternatively, an enema with three Size-6 syringes once a day. (b) The bark is peeled on the east and west side of the tree and chopped with <i>Acalypha vilacaulus</i> root. A handful of plant material is boiled with water just covering the plant material until water drops to the same level of plant material,	Aphrodisiac, menorrhagia, lactagogues (Hedberg and Hedberg, 1982); abortifacient, gynaecological disorders (Hutchings et al., 1996).

Table 1 (continued)

Botanical name and voucher number	Family	Zulu name given by interviewees	Plant part used	Number of times quoted	Method of preparation and administration	Other reported uses for gynaecological and obstetric disorders
<i>Ochna natalitia</i> Walp. (SC Ngubane 4)	Ochnaceae	Umphendulo, Umajoya*	Roots	8	cool before straining. Half a cup is taken three times a day to induce lactation by a new mother just after delivery. (c) Equal amounts of dry or fresh bark of <i>K. africana</i> and <i>Searsia nebulosa</i> are pounded together and three handfuls are boiled in 2 L of water for 30 min, cool before straining. Half a cup of the decoction is taken twice a day to treat dysmenorrhoea. (a) Two handfuls of chopped root are boiled in 1 L of water for 1 h. Drink half a cup three times a day to treat dysmenorrhoea, menorrhagia and infertility. One cup three times a day can be taken for after-birth pain, and a quarter of a cup twice a day at the third trimester to ease labour and reduce delivery complications. (b) A handful of dry chopped root is boiled in 2 L of water for 20 min, cool and strain. One cup is taken orally three times a day to treat menorrhagia, dysmenorrhoea and for blood purification in a pregnant woman. (c) It is used in combination with <i>Bridelia cathartica</i> , <i>Tabernaemontana elegans</i> , <i>Erythrina humeana</i> , and <i>Searsia nebulosa</i> as described above (at <i>B. cathartica</i>) to treat dysmenorrhoea and infertility. (d) It is used in combination with <i>Rhoicissus digitata</i> , <i>Commiphora neglecta</i> , <i>Grewia occidentalis</i> , <i>Bridelia cathartica</i> , <i>Garcinia livingstonei</i> and <i>Crotalaria monteiri</i> as described above (at <i>B. cathartica</i>) to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant. (e) It is used in combination with <i>Erythrina humeana</i> as described above to treat menorrhagia.	Infertility (Steenkamp, 2003).
<i>Opuntia stricta</i> (Haw.) Haw. NZ-41	Cactaceae	Umdolofiya	Stem	2	(a) Two handfuls of chopped stem are boiled in 3 L of water for ± 45 min and then cool before straining. Half a cup of the decoction is taken orally three times a day when pregnant at the third trimester to dilate the cervix and to cleanse blood. (b) It is used in combination with <i>Bridelia cathartica</i> and <i>Searsia nebulosa</i> as described above (at <i>B. cathartica</i>) to cleanse blood when pregnant.	None is found in the literature.
<i>Ozoroa engleri</i> R.Fern & A. Fern. (SC Ngubane 1)	Anacardiaceae	Isifico	Bark	2	(a) Chop the bark from the branches. Macerate two handfuls of fresh bark in 1 L of water. Drink one cup of the infusion thrice a day to treat dysmenorrhoea and after-birth pains. (b) It is used in combination with <i>Bridelia cathartica</i> , <i>Erythrina humeana</i> , <i>Acalypha villicaulis</i> , <i>Searsia nebulosa</i> and <i>Hyphaene coriacea</i> as described above (at <i>B. cathartica</i>) to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant. (c) It is used in combination with <i>Euphorbia tirucalli</i> , <i>Hypoxis longifolia</i> , <i>Scadoxus puniceus</i> and <i>Senecio serratuloides</i> as described above (at <i>E. tirucalli</i>) to cleanse blood when pregnant.	None is found in the literature.
<i>Peltophorum africanum</i> Sond. (SC Ngubane 20)	Fabaceae (sensu lato)	Isikhabamkhombe	Roots	3	(a) A handful of chopped root material is boiled in 1 L of water for 20 min, cool before straining. Half a cup is taken orally twice a day or rectally using a Size-2 syringe (± 60 mL) once a day for dysmenorrhoea and blood cleansing when pregnant. (b) It is used in combination with <i>Bridelia cathartica</i> and <i>Rhoicissus digitata</i> as described above (at <i>B. cathartica</i>) to treat dysmenorrhoea and amenorrhoea.	Prevents abortion, (Hutchings et al., 1996), menorrhagia (Steenkamp, 2003; Amusan et al., 2007), infertility (Abdillahi and Van Staden, 2013).
<i>Ranunculus multifidus</i> Forssk. (NZ-36)	Ranunculaceae	Uxhaphozi	Whole plant	1	A handful of chopped plant or leaves are mixed with either leaves of <i>Senecio deltoideus</i> or <i>Senecio serratuloides</i> and boiled in 1.5 L water for ± 30 min, cool before straining. One cup of the decoction is taken orally three times a day to treat infertility, to cleanse blood when pregnant and to ease labour.	None is found in the literature.
<i>Rhoicissus digitata</i> (L.f.) Gilg & M.Brandt (SC Ngubane 2)	Vitaceae	Umshongi*, Ithendengulube*	Roots	3	(a) Two handfuls of chopped root material are boiled in 1 L of water for 30 min or in 2 L for 1 h, cool before straining. Quarter of a cup (± 82 mL) is taken orally three times a day, to treat dysmenorrhoea and infertility. (b) Roots of <i>R. digitata</i> are chopped and mixed with the same amount of chopped roots of <i>Bridelia cathartica</i> and <i>Peltophorum africanum</i> . Four handfuls of the mixed plant material are boiled in 5 L of water for 1 h in a pot with a lid on. The decoction is taken orally, half a cup two to three times a day (depending on one's preference) this decoction treats dysmenorrhoea and amenorrhoea.	Facilitate delivery (Abdillahi and Van Staden, 2013).

<i>Sapium integririmum</i> (Hochst. ex Krauss) J.Léonard (SC Ngubane 6)	Euphorbiaceae	Udlulabehlezi*	Roots	1	(c) It is used in combination with, <i>Commiphora neglecta</i> , <i>Grewia occidentalis</i> , <i>Bridelia cathartica</i> , <i>Ochna natalitia</i> , <i>Garcinia livingstonei</i> and <i>Crotalaria monteiri</i> as described above (at <i>B. cathartica</i>) to treat dysmenorrhoea, menorrhagia, infertility, oligomenorrhoea, premature birth and to cleanse the blood when pregnant. The roots are chopped and use either dried or fresh. A handful is boiled in 1 L of water for an hour, before cool and strain. A full cup is taken orally three times a day during menstruation for dysmenorrhoea.	None is found in the literature.
<i>Sclerocarya birrea</i> Hochst. (S. Nciki 17)	Anacardiaceae	Umganu	Bark	2	A handful of chopped bark is boiled with 1 L of water for 5 min, cool before straining. Half a cup is taken rectally only once at the first three months of pregnancy to induce abortion.	Menorrhagia (Hutchings et al., 1996), facilitate childbirth and lactation (Attah et al., 2012); infertility (Abdillahi and Van Staden, 2013).
<i>Searsia nebulosa</i> (Schoenland) Moffett forma <i>nebulosa</i> (SC Ngubane 25)	Anacardiaceae	Umnqwambane*	Bark	3	(a) Chopped roots of <i>Tabernaemontana elegans</i> and the same amount of chopped <i>Bridelia cathartica</i> , <i>Erythrina humeana</i> , <i>Ochna natalitia</i> and <i>Searsia nebulosa</i> roots are mixed together. Two handfuls of mixed plant material are boiled in 2.5 L of water for 2 h. Then, it is strained and cool. The decoction is taken orally in one cup three times a day for dysmenorrhoea and infertility. (b) Equal amounts of dry or fresh bark of <i>Searsia nebulosa</i> and <i>Kigelia africana</i> are pounded together and three handfuls are boiled in 2 L of water for 30 min, cool and strained. Half a cup of the decoction is taken twice a day to treat dysmenorrhoea. (c) Chopped roots of <i>Tabernaemontana elegans</i> and the same amount of chopped <i>Bridelia cathartica</i> , <i>Erythrina humeana</i> , <i>Ochna natalitia</i> and <i>Tabernaemontana elegans</i> roots are mixed together. Two handfuls of mixed plant material are boiled in 2.5 L of water for 2 h. Then, it is strained and cool. The decoction is taken orally in one cup three times a day for dysmenorrhoea and infertility	None found in literature.
<i>Senecio deltoideus</i> Less (SC Ngubane 24)	Asteraceae	–	Leaves	1	A handful of fresh chopped leaves are mixed with the same amount of <i>Senecio serratuloides</i> . Mixed plant material is boiled in 1.5 L of water for ± 30 min, strain when it is cool. One cup of the decoction is taken thrice a day to treat infertility.	None found in literature.
<i>Senecio serratuloides</i> DC. (S. Nciki 1)	Asteraceae	Unsukumbili	Leaves, Whole plant	6	(a) A handful of chopped whole plant or leaves are mixed with either leaves of <i>Senecio deltoideus</i> or <i>Ranunculus multifidus</i> and boiled in 1.5 L of water for ± 30 min, cool before straining. One cup of the decoction is taken orally three times a day to treat infertility, to cleanse blood when pregnant and to ease labour. (b) It is used in combination with <i>Senecio deltoideus</i> as described above (at <i>S. deltoideus</i>) to treat infertility.	None found in literature.
<i>Tabernaemontana elegans</i> Stapf (SC Ngubane 13)	Apocynaceae	Umkhadlu	Roots	1	Chopped roots of <i>Tabernaemontana elegans</i> and the same amount of chopped <i>Bridelia cathartica</i> , <i>Erythrina humeana</i> , <i>Ochna natalitia</i> and <i>Searsia nebulosa</i> roots are mixed together. Two handfuls of mixed plant material are boiled in 2.5 L of water for 2 h, cool before straining. One cup of the decoction is taken orally three times a day for dysmenorrhoea and infertility.	Menorrhagia, infertility (Steenkamp, 2003).
<i>Trichilia emetica</i> Vahl (SC Ngubane 11)	Meliaceae	Umkhuhlu	Bark, root and leaves	12	(a) A handful of pounded bark and chopped root is added into 1 L of (500 mL milk and 500 mL Coca Cola soft drink) and boil for 15 min. The mixture is strained and the liquid part is administered orally once to induce abortion at a first trimester of pregnancy. (b) Five handfuls of chopped leaves are boiled in 1 L of water until water turns dark green, cool for 2–3 min after which a cloth is soaked into the hot decoction and used to massage the belly of a woman during labour. This treatment is used to ease labour and reduce pains. Massage continues until a woman give birth. (c) A handful of pounded bark and the same amount of chopped roots of <i>Gymnosporia senegalensis</i> are mixed and boiled for ± 10 min. The strained decoction is used as an enema (one Size-6 syringe) once every week, to treat infertility. (d) A handful of pounded bark is either boiled into 1 L of water for 15 min or added into one cup of cold water and macerate for 30 min. A quarter of a cup of the strained cold preparation is taken once orally, or one cup of strained decoction of boiled material is taken once orally or as an enema (one Size-6 syringe). These bark preparations are used to induce abortion for up to three months of pregnancy.	Blood cleanser (Hutchings et al., 1996), abortion (Gelfand et al., 1985).

* New Zulu vernacular name.

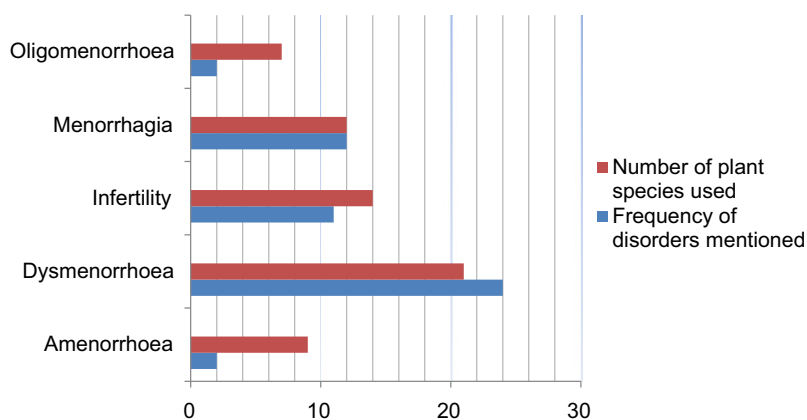


Fig. 2. The frequency of various gynaecological problems treated by several different plant species in the study areas.

be treated by more than one plant species; for example, dysmenorrhoea is treated by 21 plant species; infertility, 14 plant species; and menorrhagia, 10 plant species. Multiple species used to treat the same ailment are a common occurrence confirmed by a survey in northern Thailand where 27 plant species are used to treat dysmenorrhoea and seven species to treat infertility (Srithi et al., 2012). *Bridelia cathartica* was reported to be used for all five gynaecological problems (Table 1). The most frequently reported problems treated with *B. cathartica* were dysmenorrhoea (11 times mentioned), infertility (five times) and menorrhagia (five times) (Fig. 2). *Ochna natalitia* was likewise regularly reported for the treatment of various gynaecological problems, but mostly for dysmenorrhoea (five times) and menorrhagia (five times).

A literature survey done by Steenkamp (2003) on gynaecological complaints in South Africa reported that the majority of species (90) are used to treat infertility. Only three of those species correspond with the present study's results (*T. elegans*, *O. natalitia* and *G. occidentalis*). Four other plant species which occur in abundance in northern Maputaland (*S. birrea*, *T. sericeae*, *C. molle* and *P. africana*) were reported by Steenkamp to be used only by the Venda ethnic group (inhabit the northern parts of South Africa) to treat infertility. This is an interesting phenomenon which suggested that the availability of plants is not the only criteria for usage; cultural influence may play a pertinent role in the choice of plant species. Steenkamp's (2003) survey further documented the following menstrual disorders: amenorrhoea treated by 15 species; dysmenorrhoea, 44 species; menorrhagia, 29 species; and irregular menstruation, four species. Only nine species corresponded with the present survey results for similar disorders. Another survey done by Lindsey et al. (1999) documented 10 plant species which are used to treat dysmenorrhoea in

southern Africa, of which none corresponded with the present survey to treat dysmenorrhoea. This difference in plant species could possibly be explained because of the unique vegetation types in the current study area.

Fig. 3 shows the number of plant species that were reported by the interviewees to treat 14 obstetric problems, including abortion and the number of plant species used for each condition. Medicinal plants were mostly reported to be used for blood purification/cleansing (14 plant species) by pregnant women, followed by nine plant species to ease birth and eight to prevent preterm birth. Other reported pregnancy problems treated include after birth pains, antepartum haemorrhage, cervical dilation, delayed labour, expulsion of placenta, labour pain, postpartum haemorrhage, the prevention of miscarriage and lactation stimulation. *Bridelia cathartica* is once more the most mentioned plant (six times) to use for blood purification in pregnant women, and for four other obstetric problems. *Bridelia cathartica* was also reported by Chhabra et al. (1990) in connection with "blood treatment", specific for the treatment of anaemia in Tanzania. The latter is confirmed by Omolo et al. (1997) which reported that *B. cathartica* has a high iron concentration and is used by east African people to treat anaemia. *Ochna natalitia* is the second most mentioned plant to treat seven of the 14 obstetric problems recorded (Table 1).

There is one specific plant (*umkhuhlu*) which the community makes sure that all girls are wary of; it was identified as *Trichilia emetica* (Table 1). *Trichilia emetica* was mentioned by 10 interviewees to be used as an abortifacient in the study area. Gelfand et al. (1985) reported that in Zimbabwe both *T. emetica* and *T. dregeana* Harv. & Sond. were used as abortifacient plants. Other species of the genus *Trichilia*, namely

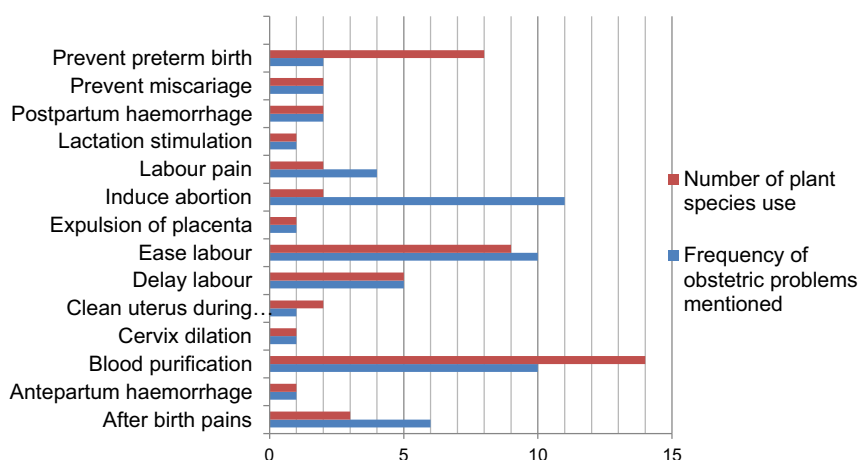


Fig. 3. The frequency of various obstetric problems treated by several different plant species in the study area.

T. hirta L. (Duke, 2012) and *T. monadelphica* (Thonn.) J.J. de Wilde (Abbiw, 1990) are also abortifacient plants. The ability of these plant species to induce an abortion could be genus related. Steenkamp (2003) reported 18 other plant species which are used in South Africa to induce abortion, but *Trichilia emetica* and *S. birrea* were not included. Last mentioned two species are documented for the first time as being used by the Zulu people as an abortifacient plant. Although abortion has been legally available in South Africa from 1997, unsafe abortions are still practised, especially in rural areas. According to the WHO in 2008, more than 97% of abortions in Africa were unsafe, with the lowest rate of 58% in South Africa. In Tanzania where abortion is still illegal, 40% of women seeking abortion in rural areas have used plants to induce abortion (Nikolajsen et al., 2011). Nikolajsen et al. (2011) collected data from birth attendants and nurses, which reported 21 plant species that can be used to induce abortion, although none of them ever advised the use of it. In Uganda, 75 plant species were reported to induce labour, remove the retained placenta, regulate postpartum bleeding and be used as abortifacients (Kametenesi-Mugisha and Oryem-Origa, 2007). In Cameroon, Noumi and Tchakonang (2001) documented 20 plant species which are used to induce abortions. None of the above-mentioned species correspond with the present study's two species (*T. emetica* and *S. birrea*). In contrast with the present survey where *S. birrea* bark is used rectally to induce an abortion, the same plant is used to treat infertility by the Venda people (Mabogo, 1990). Interestingly no plants were mentioned to be used as contraceptives in the present study, while Steenkamp (2003) documented eight plants that are used as contraceptives by South African women. The *G. livingstonei* root that is used in the present study to treat infertility is reported by Mabogo (1990) to be used as a contraceptive by the Venda people. The same contrast is observed for *E. natalensis* root where Arnold and Gulumian (1984) reported it being used to treat infertility as well as an abortifacient plant by the Venda people. Only *Kigelia africana* was mentioned once in the present study to be used as a lactation stimulant, with the similar use in Tanzania (Hedberg and Hedberg, 1982). Surprisingly no plants were mentioned to treat "morning sickness". While the herb cannabis (*Cannabis sativa* L.) in various forms has been utilised as a treatment for morning sickness in many indigenous cultures throughout history (Russo, 2002), it was not mentioned by any interviewee in the study area. This is probably because it is an illegal plant to grow and use in any format in South Africa. Interestingly it was growing in the vicinity of many homesteads in the study area.

In the present survey 13 different plant combinations were reported to treat various gynaecological and obstetric problems, with as many as seven species in one combination (Table 2). The use of plant combinations is not novel as many similar studies reported a number of different plant combinations. In India, Katiyar et al. (2002) reported a plant combination of 15 plant species to manage gynaecological and pregnancy

disorders. In South Africa a combination of 12 plant species is used for the preparation of *isihlambezo*, a tonic that is used by pregnant women as a cleanser or purifier to maintain and facilitate pregnancy (Varga and Veale, 1997). The lay people of northern Maputaland have a tendency to use plants in combination for treating various ailments as reported in previous ethnobotanical surveys conducted in this region. In these surveys, York et al. (2011) reported 24 different plant combinations for the treatment of respiratory infections with the maximum of four plant species in a combination. De Wet et al. (2012) recorded 23 different plant combinations to treat sexually transmitted infections, and 14 plant combinations for the treatment of skin disorders with a maximum of seven plants in a combination (De Wet et al., 2013).

Sixteen of the 32 plant species recoded in the present study were previously documented in the same study area for treating various infectious diseases (Table 3) (De Wet et al., 2010, 2012, 2013; York et al., 2011). *Sclerocarya birrea* (in all four previous surveys) *Acanthospermum glabratum* and *Senecio serratuloides* (in three of the four surveys) are the three species mostly used in northern Maputaland as indicated in previous surveys.

All the plants that are reported in the current survey are growing naturally in and around the homesteads. The majority are not threatened with respect to their conservation status, except for *Hypoxis hemerocallidea* which is reported to be declining in the wild (Williams et al., 2013). In resemblance, Ticktin and Dalle (2005) reported that of the 79 species used by midwives in rural communities in Honduras, 45% were grown in home gardens and 37% were collected in the wild, of which 75% were abundant weedy or early successional species, which grow in disturbed areas.

3.3. Administration routes and dosage

During this survey it was apparent that taking the medicinal plants orally was the most preferred administration method. Thirty one plant species (97%) are taken orally as a decoction whereas five plant species (16%) can also be administered rectally, with one plant administered only rectally. Merely one plant preparation was applied topically to ease labour. In some cases oral and rectal routes are used in combination for the same plant preparation. For example, *Acacia burkei*, *Erythrina humeana*, *Kigelia africana*, *Peltophorum africanum* and *Trichilia emetica* preparations are taken orally along with rectal administration but at different time slots (oral in the morning for a few days, and rectal in the afternoon after a couple of days). In a literature review on South African plants used to treat infertility it was found that the modes of administration were mostly decoctions of plants mixed in porridge and infusions taken orally or as vaginal douches (Abdillahi and Van Staden, 2013). A study in Cameroon reported that plant material was inserted in the vagina to start abortions (Noumi and Tchakonang,

Table 2

Plant combinations used to treat gynaecological and obstetric conditions by lay people in northern Maputaland.

Combination of plant species used	Plant parts used	Disorders treated
<i>Bridelia cathartica</i> + <i>Commiphora neglecta</i> + <i>Crotalaria montei</i> + <i>Garcinia livingstonei</i> + <i>Grewia occidentalis</i> + <i>Ochna natalitia</i> + <i>Rhoicissus digitata</i>	Roots	Dysmenorrhoea, menorrhagia, oligomenorrhoea, infertility, prevent premature birth and blood cleansing
<i>Bridelia cathartica</i> + <i>Erythrina humeana</i> + <i>Ochna natalitia</i> + <i>Tabernaemontana elegans</i> + <i>Searsia nebulosa</i>	Roots	Dysmenorrhoea and infertility
<i>Bridelia cathartica</i> + <i>Erythrina humeana</i> + <i>Acalypha villicaulis</i> + <i>Searsia nebulosa</i> + <i>Hyphaene coriacea</i> or <i>Ozoroa engleri</i>	Root + Root + Root + Root + Root + Stem or Root	Dysmenorrhoea and infertility
<i>Acalypha villicaulis</i> + <i>Bridelia cathartica</i> + <i>Searsia nebulosa</i>	Root bark + root + root	Dysmenorrhoea
<i>Bridelia cathartica</i> + <i>Peltophorum africanum</i> + <i>Rhoicissus digitata</i>	Roots	Dysmenorrhoea and amenorrhoea
<i>Bridelia cathartica</i> + <i>Opuntia stricta</i> or <i>Searsia nebulosa</i>	Root + stem/root	Blood cleansing
<i>Erythrina humeana</i> + <i>Ochna natalitia</i>	Root + leaves	Menorrhagia
<i>Garcinia livingstonei</i> + <i>Cassytha filiformis</i>	Bark + whole plant	Stimulate lactation
<i>Gymnosporia senegalensis</i> + <i>Trichilia emetica</i>	Root + bark	Infertility
<i>Kigelia africana</i> + <i>Searsia nebulosa</i>	Bark	Dysmenorrhoea
<i>Kigelia africana</i> + <i>Acalypha villicaulis</i>	Bark + whole plant	Stimulate lactation
<i>Senecio serratuloides</i> + <i>Senecio deltoideus</i> or <i>Ranunculus multifidus</i>	Leaves	Blood cleansing, ease labour and infertility
<i>Senecio deltoideus</i> + <i>Senecio serratuloides</i>	Leaves	Infertility and pelvic pains

Table 3

A summary of corresponding plant species previously recorded in the same study area for treating various infectious diseases.

Plant species	Diarrhoea	Respiratory infections	Sexual transmitted infections	Skin disorders
<i>A. glabratum</i>	X	X		X
<i>A. burkei</i>	X			X
<i>B. cathartica</i>		X	X	
<i>G. livingstonei</i>	X			X
<i>G. senegalensis</i>	X			
<i>H. hemerocallidea</i>			X	X
<i>K. africana</i>			X	X
<i>O. engleri</i>			X	X
<i>O. stricta</i>			X	X
<i>P. africanum</i>			X	
<i>R. multifidus</i>			X	X
<i>S. birrea</i>	X	X	X	X
<i>S. deltoidea</i>		X		
<i>S. serratuloides</i>		X	X	X
<i>T. elegans</i>			X	X
<i>T. emetica</i>	X	X		

2001); where in the present survey a decoction was taken either orally or as an enema to induce an abortion. Three other studies done on gynaecological and obstetric problems treated by herbal remedies had reported that decoctions taken orally were the major way of administration (Coe, 2008; Panyaphu et al., 2011; Telefo et al., 2011). It is reported by the interviewees that the combination of the two routes enhances the treatment strength of the plant, and therefore the healing is faster than when only one route is taken. According to the respondents orally taken preparation travels through the body and collects the “dirt” which causes the discomfort to be deposited into the digestive system. Rectally administered preparation (enema) collects the “dirt” deposited and gets rid of it; it also releases the heat of the fever that goes with the ailment. Enemas are injected anally by making use of bulb syringes of various sizes (Fig. 4). The route to be taken is determined by the preparation method, the plants added as well as the ailment to be treated.

Administered dosages for this study are measured with a cup (± 250 mL) and less frequently a spoon (± 12.5 mL) for oral administration and a rectal syringe (usually a Size-6) for rectal administration. Each syringe has a different number on the bottom of the bulb, ranging from size 1 to size 10. The specific size volumes have been measured as accurately as possible. Size-1 has a volume of approximately 30 mL, while Size-6 is 180 mL and Size-10 is 300 mL (York et al., 2011). All the interviewees mentioning the use of such a syringe referred to the number of the syringe. Time intervals for administration of plant preparations varied from 1 to 3 times a day. One plant preparation was reported to be taken topically by rubbing it on the pregnant woman's belly using a cloth. Most of the reported plant preparations were taken after it was cooled and strained. When *Trichilia emetica* is taken to induce an

abortion, it is taken only once, with a precaution that if it is improperly taken, it may cause death to both the mother and the foetus or cause severe damage of the uterus that will result in permanent infertility. Administration methods and dosages were given with no age restriction because, according to the interviewees, pregnancy and gynaecological problems rarely occur in young children.

3.4. Use of traditional medicine vs. allopathic medicine

The use of botanicals during pregnancy and lactation is practised worldwide by women, not just in rural areas. A review by Ernst (2002) on the use of herbals during pregnancy in the United States found that there were greater uses amongst white and better educated women in the form of dietary supplements. A survey done in eastern United States revealed that 45% of 578 pregnant women used herbal medicines, while 36% of 588 Australian women had used at least one herbal product during pregnancy (Glover et al., 2003). It is believed that botanicals are mild in both treatment effects and side effects, but very little research had been done assessing the safety and effectiveness of these herbal remedies during pregnancy and lactation (Dog, 2009). Ernst (2002) concluded in his review that many herbal medicine products have been associated with risks to pregnant women and their babies, and should be considered contraindicated during pregnancy and lactation. A review paper from Veale et al. (1992) indicates that at least 16 of 57 plant species used by South African women either as antenatal or to induce or augment labour are toxic.

Interviewees from northern Maputaland prefer to use traditional medicine over allopathic medicine to treat gynaecological and obstetric problems. This corresponds with the previous studies that lay people in rural areas prefer to use traditional medicine because it is perceived to be more effective, cheaper and readily available (De Wet et al., 2010, 2012, 2013; York et al., 2011). The majority of the respondents in the present study reported that allopathic medicine is sometimes not sufficient to cure gynaecological problems such as dysmenorrhoea. A number of respondents reported to have suffered from dysmenorrhoea and tried allopathic medicine which was not effective until they used traditional medicine and got cured. They believe that allopathic medicinal treatment is only effective for a short time, whereas traditional medicine cures for a longer period. Apart from the above mentioned reasons, traditional medicine in northern Maputaland is valued as part of their cultural activity. Some respondents reported that incidents of caesarean sections could be avoided by making use of traditional medicine during pregnancy and delivery. From the current study it was learned that some of the interviewees believe that some ailments related to gynaecology and pregnancy cannot be treated with allopathic medicine. In the study area, the distance to health care facilities also promotes the preference for traditional medicine, despite the presence of 13 clinics and two hospitals in that area (De Wet et al., 2013).

4. Conclusion

The main aim of this study was to collect and document information on traditional knowledge of the use of medicinal plants to treat gynaecological and obstetric problems from a rural community in northern Maputaland. This aim was achieved as 32 plant species were documented to treat 19 “women problems” involving gynaecological and obstetric related conditions. The most frequently reported plant species were *Bridelia cathartica* (18 times mentioned) and *Trichilia emetica* (12 times). This study possesses a high degree of novelty which included 16 plant species that were documented for the first time in the literature to treat gynaecological and obstetric disorders. Furthermore, 12 new Zulu vernacular plant names were recorded. All 13 plant combinations mentioned in this survey were recorded for the first time. This wealth of new knowledge gained with the current survey reinforces the importance of documenting lay people's indigenous medicinal plant knowledge in rural communities. Results also strongly

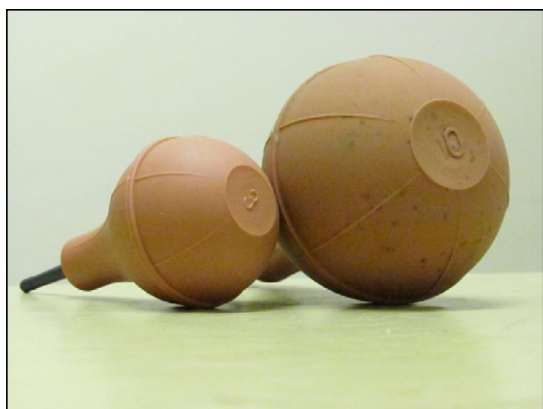


Fig. 4. Two bulb style enema syringes (size-3 and size-10) (Photo: T York).

suggest that the availability of plants is not the only criteria for usage; cultural influence may play a pertinent role in the choice of plant species, and cultural views on medicinal plants override the use of allopathic treatment. From literature reports it is clear that herbal use during pregnancy can be unsafe. It is thus important to investigate the efficacy and toxicology of these reported plants, and incorporate this knowledge into the health care system of South Africa.

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