

Abortifacient plants of the Buea region, their participation in the sexuality of adolescent girls

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A survey carried out on 297 teenage girls from four different high schools show that 43.7% cases of abortion were done using some of 24 plant species belonging to 16 families. Within 1996 and 1998, 85 cases of provoked abortion were registered in the surgical service of the district hospital in Buea. With 63.2% cases of plant elements diversified side effects resulting from these abortion were equally registered.

Key words: Abortifacient activity, Medicinal plants, Buea region, Cameroon
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Abortion is a process that stops the development or provokes the expulsion of the foetus before it becomes viable. It can be accidental, spontaneous or provoked. It constitutes a major public health problem in Africa¹. Some anterior studies were done on sexuality in general, or focused on some particular subjects, or on sexual education at school medium²⁻⁶. Others were interested with cases of abortion registered in hospital centres⁷⁻¹⁰. No attention had been paid on the substances used for abortion. Since 1997, the laboratory of Plant Biology has been carrying out a programme of ethnobotanical research on human sexuality^{11,12}. In the study, an attempt has been taken to bring into prominence the plant elements used to provoke abortion at Buea. The objectives of the paper are therefore to appreciate the part of abortifacient plants in the sexuality of adolescent girls, to provide information on their uses as practised in the Buea region, and to expose their adverse effects as registered in the Buea district hospital.

Buea is situated between 4°5'-4°8'N latitude and 9°2'-9°5'E longitude in Fako division of the South-West province of Cameroon. Buea, the capital town of the Province is at an elevation of 1,000 m on the east flank of mount Cameroon (highest peak 4,100 m). The high altitude, the mountain and the closeness of the Atlantic Ocean, have a modifying effect on the temperature of the town. The mean annual precipitation stands at about 2875 mm; mean

annual temperature is 21°C, and the climate is equatorial, with two seasons; a dry season from December to February and a rainy season from March to November. In 1987, its urban population was estimated to 32,871 inhabitants, representing 3.9% of the total population of the province and 0.31% of the total population of Cameroon. It is the homeland of *Bakweri* and many immigrant communities (*Bakossi*, *Banyangue* and *Bamiléké*). The main language is *Bakweri*, but the most current language used is the pidgin (a simplified and Africanised English), though the official language is English. The local population depends on hunting, fishing and traditional subsistence agriculture for a livelihood. The biggest employer in the region is the Cameroon Development Corporation (CDC), with its large rubber, banana and palm plantations. The plantation workers often consist of entire families. The greater proportions of the plantation labourers are very poor.

Methodology

The fieldwork was conducted during 1997-1999 with 4 field trips. The study took interest in 3 groups of the target population. The selection of schools was done randomly by choosing without putting back, from a list of 6 schools out of 12 in the town. The Heads of the schools, of investigation, confirmed the anonymous and bilingual aspect of the questionnaire (English, French). The questions were relative to the sexual education, the contraception, the abortion and the materials used to abort. The objectives and the

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indications of the questionnaire were given to the students. The result was computerised and analysed with the software IPSS and Excel. Traditional healers, herbalists, men and women were practising abortion. The information was gathered on the basis of ranging conversation. The objectives and the indication on the goal of the project were given. The questions were on the knowledge of abortions, the plants used, the mode of preparation and the method of administration. The side effects were also reported. Only the plants and recipes cited by at least 3 different informants were retained in the study. The plants were collected, dried, identified and authenticated at the National Herbarium of Cameroon, Ministry of Scientific and Technical Researches, Yaoundé, Cameroon. Plant classification and nomenclature of FWTA (Flora of West Tropical Africa) were followed. The voucher specimens were kept in the Plant Biology Laboratory of Higher Teachers' Training College of the University of Yaounde I, for future references.

The women admitted in the Buea district hospital for abortions. The data on abortion cases registered in the surgical service of the hospital were gathered with the permission of the Medical officer in charge, on the types of abortion, the elements used and the consequences. The names of those patients were not published, but their references in the register were published to facilitate the verification. The evaluation of the number of medical preparations used and the determination of the percentage of plants found in Buea that are actually used for abortion purposes may provide a good indication of the degree of phytotherapeutical exploitation. Hence, the Exploitation index (EI) was calculated using the formula $EI = \%Pm \times AMP$, where % Pm is the percentage of plants used for abortion in Buea, and AMP is the average number of medicinal preparations per plant.

Results

The survey was made on 297 girls aged between 6-21 yrs; 138 from Government Bilingual High School of Molyko, 119 from Baptist High School; 30 from Government High School of Bokwango, and 10 from Buea Bilingual College. Among these girls, 40.4% had their first sexual act before 16 yrs with 1.3% of rape before 10 yrs old. Many cases of unwanted pregnancy were reported; 4.7% of girls with one pregnancy and 3% of girls with each 2 pregnancies. The absolute value of those pregnancies is 32. 34.3% delivered safely, 65,6% aborted, and

43.7% of pregnancies stopped with elements from plants. The plants are listed with their botanical and local name(s), family and recipe with method of preparation, mode of administration, and side effects (Table 1).

The widespread knowledge about abortion is evident by the fact that each abortionist interviewed mentioned a greater number of abortifacient recipes: averages per informant: 2.90 quotations). The ratio between the number of abortifacient preparations and the number of species available provide the exploitation index (EI) for abortion in the study area. Given that there are approximately 8,000 plants species in Cameroon, the percentage of plants used (% Pm) is 0.3 ($= 24/8,000 \times 100$) and the EI for abortifacient plants in Buea is $\% Pm \times AMP = 0.3 \times 1.12 = 0.33$ (the percentage of 24 plant species of 8,000 multiplied by 1.12, the percentage of preparation per plant species)¹³. The statistical data of the retrospective study extended from 1st October 1996 to 30th September 1998, on a total of 1,469 patients admitted in the surgical block of the Buea district hospital is presented (Table 2).

No woman had been registered twice during 1996-1998 for abortion. The number of parturient spread according the age was re-evaluated (Fig. 1). Regrouped data on the age of the 185 parturient under 27 yrs of age are presented on the abscissa (X-axis) by intervals of 2 years, and on the Y-axis representing the number of patients concerned by abortions (spontaneous or provoked).

The average age of parturient victim of spontaneous abortions is $\bar{X} = 26.32$ yrs with a standard deviation $\sigma = 5.32$ yrs. The average age of parturient of induced abortion is $\bar{X}' = 20.46$ yrs, with a standard deviation $\sigma' = 3.6$ yrs. Hence the provoked abortion common with young girls, due to unwanted pregnancy which begin at 13 yrs old, while the spontaneous abortions is common with married or matured girls, who desired the pregnancy. Among the elements used to abort, 67.4% are from plant origin; - the ovules (43.4%) fabricated as indicated in the recipes of *Ageratum conyzoides*, *Monordia charantia*, *Momordica foetida* and *Physalis angulata*; -the plant extracts (10.8%) as in the recipes of *Achyranthes aspera*, *Aloe barteri*, *Basella alba*, *Cassia alata*, *Fleurya aestuans*, *Hibiscus rosa-sinensis* and *Physalis angulata*; -the plant elements (13.2) introduced mechanically into the uterus as in the recipes of *Cyperus esculentus*, *Mariscus cylindristachyus* and *Oxytenanthera abyssinica*. The

Table 1 — Abortifacient plants and their recipes in the Buea region

(a) The values in parenthesis are percentages of quotation of the recipes by abortionists

Recipes ^(a)	Plant name/family/local name	Mode of use and side effects
Total recipe = 27 Total abortionists = 43 Total quotations = 125 Total quotation /abortionist = 2.90.	Total plant species = 24 Total quotations of plant species in all recipes = 27 Total plant species/recipes = 24/27 = 0.88 Total quotations/recipes = 27/27 = 1	Total of abortive preparations = 27 Average of preparation per plant (AMP) = 27/24 = 1.12 Main preparation methods: decoction, 37%; maceration, 25.9%, balls, 14.8% Main administration forms of 27 preparations: orally (51.8%); per vagina (25.9%); per rectum (22.2%)
1 (3.2)	<i>Abrus precataurius</i> L./Fabaceae/ <i>Miso ma wombe</i>	Seeds decoction is given two times a day for 2 days. It was reported that the parturient bleeds profusely and remains very weak.
2 (4.8)	<i>Achyranthes aspera</i> L./Amaranthaceae / <i>Nom konguase</i>	Decoction of leaves is administered. It was reported that the haemorrhage is abundant & painful and the expulsion of the foetus occurs in 4-6 hrs.
3 (2.4)		Leaves macerated in local rum, called <i>Odontol</i> or <i>Ha</i> for 24 hrs is administered 1 spoonful twice a day facilitating miscarriage effects.
4 (2.4)	<i>Ageratum conyzoides</i> L./Asteraceae/ Wekoko, <i>Esum esieux</i>	Inflorescences ground with a piece of clay, mixed with 4 teaspoonfuls of alcohol and rolled in a ball is introduced into vagina. Foetus of less than 3 months is expelled after terrible pains and haemorrhages.
5 (2.4)	<i>Albizia lebbek</i> Benth./Mimosaceae/ <i>Tee nyama</i>	Stem bark decoction is administered twice a day for 2-3 days. The expulsion of foetus occurs in 3-4 days.
6 (3.2)	<i>Aloe barteri</i> Baker/Liliaceae/ <i>Aloe vera</i>	Minced and macerated leaves in water are drunk three times a day to expulse foetus of less than 1 month old.
7 (2.4)	<i>Bassella alba</i> L./Basellaceae/Spinach	Spinach made in dishes is regularly eaten at the end of pregnancy to reinforce the contractions and to facilitate delivery.
8 (6.4)	<i>Cassia alata</i> L./Caesalpiniaceae/ <i>Enangi njo</i>	Leaf decoction is taken three times a day for 2 days to kill foetus in uterus. Some women who had experienced the recipe remained sterile.
9 (2.4)	<i>Cyperus esculentus</i> L./Cyperaceae/ <i>Esum</i>	The peduncle of the inflorescence coated with soap as lubricant is introduced into vagina and the cervix into the uterus, so that the whitish reinforcement is in contact with the foetus. As prescription, the parturient remains lying on the back for 24 hrs to expulse a foetus of less than 3 months old. It was reported that the parturient bleeds enormously and the infections were frequent.
10 (2.4)	<i>Diospyros mespiliformis</i> Hochst. ex A. DC ./Ebenaceae/ <i>Epindepinde</i>	Root decoction is taken thrice a day. Miscarry is long and very painful.
11 (3.2)	<i>Fleura aestuans</i> L./Urticaceae/ <i>Taatoua</i> , Burning grasses	Leaves crushed and macerated are taken twice a day for 2 days. Abundant bleeding and severe pain follow the expulsion of the foetus for 5-6 days.
12 (3.2)	<i>Gossipium barbadense</i> L./Malvaceae/Cotton	Root decoction is taken twice a day.
13 (3.2)	<i>Gossipium hirsutum</i> Mill./Malvaceae / Cotton, <i>Siamdi toumboyo</i>	See <i>Gossipium barbadense</i> .
14 (3.2)	<i>Hibiscus rosa-sinensis</i> L./ Malvaceae/Hibiscus	Stem bark pounded and macerated are taken twice a day, or used as enema (250 ml twice a day) for 3 days.
15 (5.6)		Leaves pounded and macerated are used as enema twice a day for 3 days. Patients suffer from abundant bleeding with pain and risk of anaemia.
16 (2.4)	<i>Mariscus cylindristachyus</i> Steud./ Cyperaceae/ <i>Esum</i>	The peduncle of inflorescence is used like those of <i>Cyperus esculentus</i> . It is employed for foetus of more than 3 months old.
17 (9.6)	<i>Momordica charantia</i> L./Cucurbitaceae/ Etongia, Ndombo small leaves, <i>Haoussa egussi</i>	Seeds ground and rolled into a ball are introduced in the vagina. Patient is advised not to drink cold water. Foetus gets expelled after 3 days with vigorous pain and haemorrhage. Overdoses lead to death of some girls; genial infections were frequent.

Table 1 — Abortifacient plants and their recipes in the Buea region — *Contd*

(a) The values in parenthesis are percentages of quotation of the recipes by abortionists

Recipes ^(a)	Plant name/family/local name	Mode of use and side effects
18 (9.6)	<i>Momordica foetida</i> Schum. & Thonn./ Cucurbitaceae/ <i>Etongniea</i> , <i>Ndombo</i> big leaves	Uses and the side effects were similar to those of <i>Momordica charantia</i> .
19 (5.6)	<i>Nicotiana tabacum</i> L./Solanaceae/ <i>Taako</i>	Macerated leaves were used as enema. Its violent effects were followed with dizziness; frequently parturient went into coma.
20 (2.4)	<i>Oxytenanthera abyssinica</i> Munro/Poaceae/ <i>Indian bambou</i>	One internodes was split into 4-6 lamellas and 1 lamella was introduced by bevelled-edge throughout vagina and the cervix into the uterus to wound the foetus. The parturient remained on bed with her back for 24 hrs to expel the foetus. Young stem of 1 cm diameter may replace the lamella. The danger of the recipe includes infection, tears, wounds, haemorrhage and death.
21 (4.0)	<i>Physalis angulata</i> L./Solanaceae/ <i>Bush tomato</i> , <i>Goose berry</i>	Seeds dried, ground and rolled into a ball with the help of saliva are introduced into the vagina to expel the foetus in 1 week. The recipe led to sharp pain, abundant bleeding, severe anaemia and even death.
22 (2.4)	<i>Rauvolfia vomitoria</i> Afz./Apocynaceae/ <i>Itogogo</i>	Leaf decoction is administered. The operation can be repeated.
23 (3.2)		Roots infused in hot water are used 3 times a day for two days as enema. The effect is violent & painful and an overdose is deadly.
24 (2.4)	<i>Sida acuta</i> Burn. F./Malvaceae/ <i>Sobo</i>	Uncooked leaves are consumed to facilitate delivery.
25 (3.2)	<i>Talinum triangulare</i> Jacq. Wil./Portulacaceae / <i>Water leaf</i>	Leaves are eaten at the end of pregnancy to facilitate delivery.
26 (4.8)	<i>Vernonia amygdalina</i> Delile/Asteraceae/ <i>Ndo'o</i> , <i>Bitter leaf</i>	Leaf decoction with a piece of salt rock is used as enema; the effects are violent, stressful with dizziness.
27 (2.4)	<i>Withania somnifera</i> (L.) Dunal/Solanaceae/ <i>Nlod</i>	Root decoction is given twice a day for 2-3 days to tone up uterus, induce miscarry, and to remove retained conception products. Bleeding is profuse.

Table 2 — Data statistical data of patients registered

Repartition of patients			Total patients: 1469
Men			42.88%
Women	Abortion cases	Spontaneous	6.12%
		Provoked	5.78%
	Other ailments		45.20%

chemical products (32.6%) are made of potassium permanganate, tablets and unknown medicines.

The consequences are numerous, ranging from abundant bleeding in many cases, with clotting (13.7% of parturient), vaginal discharge with stinking smell and varied colours (13.7%) and peritonis (11.7% of parturient) are those who come themselves. Many parturients died (11.7% of patient); e.g. the patient, who introduced tablets of potassium permanganate into vagina and the patient, who introduced ovules prepared from plants into vagina. The clandestine abortionists operated in dirty places under deplorable hygienic conditions, with unsterilized objects. Many other additional health risks in the propagation of venereal diseases and AIDS were observed.

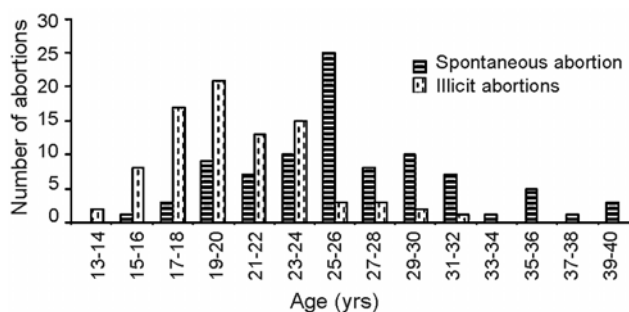


Fig.1 — Registered abortion cases from 1-10-1996 to 30-9-1998, Buea district hospital

Discussion and conclusion

The sexual act occurred between 8 and 21 yrs in 68.3% of the cases in Buea, 53% at yaoundé, its average age being 16 yrs. The contraceptive methods were used by only 24.24% of girls⁴. The pregnancy occurred in 10.7% of girls, 3.7% of them gave each a live child and 7% of pregnancies were determined. With their sample population 24% of pregnancies with 8% of maternity, the rate of abortion is distinctively lower in Buea⁴. Among the women who entered the surgical block of the Buea district hospital, from 1st October 1996 to 30 September 1998, 10.1% were registered for provoked abortions. The

proportion is relatively moderated as compared to 13.15% found at Niété and Kribi in the South Province of Cameroon and that of 19.7% found in Tiko and Limbe in the South-West Province^{8,9}. Classically, the most exposed age groups were found in the population of less than 20 yrs. These were the age groups of highest risk. Girls between 13-17 yrs, made 23.32% of abortion in the study area; 24.2% in Tiko and Limbe⁸. Those of 18-21 yrs, participated in 48.2% at Buea, and those of 18-22 yrs reached 34.1% at Tiko and Limbe, 49.1% at Niéte and Kribi^{8,9}.

About 24 plant species belonging to 16 families used for abortion in the Buea region, Southwest province of Cameroon were recorded. In that area, the particularity may be attributed to cultural stratification resulting from several waves of colonisation (German: 1884-1918, and English 1918-1959). Many plants introduced in these periods, *Albizia lebbek*, *Basella alba*, *Hibiscus rosa-sinensis* and *Oxytenanthera abyssinica* were used to abort. Certain species inventoried such as *Cyperus esculentus*, *Fleurya aetnans*, *Mariscus cylindristachyus*, *Withania somnifera* were never reported in the ethnobotanical literature of Cameroon¹⁴⁻¹⁸. For others, the new recipe is described included, *Achyranthes aspara*, *Ageratum conyzoides*, *Cassia alata*, *Physalis angulata*, *Sida acuta* and *Vernonia amygdalina*. Other species like *Aloe barteri*, *Momordica charantia*, *Momordica foetida*, *Nicotiana tobacum* and *Rauvolfia vomitoria* used in other countries for the same reasons testifies of their abortive effects^{15,18-22}. Some plant species act by their constituents that induced abortion, e.g. case of *Momordica charantia* roots was brought to the fore^{8,12,23,24}. *Albizia lebbek* root extract has an important cytotoxic action and its stem bark decoction has toxicity on mice with peritoneum irritation symptoms (Tachypnoea, ataxia, depression and sometime death)^{25,26}. The abortifacient properties are due to their toxic chemical substances; *Abrus precatorius* seeds contain abrine, an abortifacient and tetratogen^{27,28}. *Diospiros mespiliformis* stem bark yields pumbagol with violent phenomena of excitation on fishes and mice, the deathly dose being 5 gm per kg²⁹. *Gossipium* sp contains gossipol, a nervous and cellular poison, inducing uterine stimulation, and intestinal damage^{30,31}. The extract of roots and stems lead to contractions of uterus similar to spontaneous contractions of delivery³². *Nicotiana tabacum* leaves contain nicotine that can kill cold-blooded animals (insects, frogs). It is toxic to some warm-blooded animals, dogs, cats, pigs or human being³².

As consequences, many cases of illicit abortions ended in the hospital. Despite the structures, the rate of mortality reached 11.7% among patients who induced abortions. The plant elements used to abort represented 67.4% at Buea, 33.8% at Limbe and Tiko⁸. The severe signs are haemorrhages and infections; respectively 43% and 45% in Buea, 81.1% and 40% in Niéte and kribi, 79.2% and 41.7% at Tiko and Limbe^{8,9}. Certain women after using recipes of *Oxytenanthera abyssinica* to abort, no more had uterine cervix. The sharp instruments used cut and removed the cervix during the different operations³³. The study permits to quantify the predictions; -uterus and bladder are at times perforated; - in one patient, who introduced the stem of *Pennisetum purpureum* (Poaceae) into the uterus, it led to the infections of uterus and surgical intervention was done to remove the debris of the stem implanted in the uterus. Premarital sex lead to school dropouts amongst girls in Buea, Yaounde in Cameroon, and as in Kenya^{4,6}. Adolescent girls fared poorly relative to boys in an educational system characterised by enormous growth, deteriorating quality, and rising costs⁵. Men used to consume the aphrodisiac plants to become more vigorous and sexually active, a compoment that cans only impire the situation¹¹.

The quantitative analysis has focused on the number of recipes per plant and on their efficiency. Twenty-four plant species are employed in 27 recipes with relationship of 0.88 plants per recipe. Habitually, each plant species is used alone. The average quotation per informant (2.90) indicates the high degree of abortifacient plant knowledge of Buea traditional healers (Table 2). The exploitation index (EI) in respect with abortifacient plants, evaluated at 0.33 is lower in accordance to those of Campidano Valley (3.66) and Urzulei (3.32). These EI are calculated from all plants used for medicinal purposes. The value of EI on abortion in Campidano Valley, obtained by extrapolation from the data (up cited) is 0.04, which seems very low and may be concluded that EI on abortion in Buea is appreciable.

From this study, it can be established that mainly teenage girls than women use plant species in Buea region as abortifacient. Some of the plants are used for the pharmacodynamic properties of their chemical substances as in Sangmelima region¹². In addition, other plant elements are used for mechanical action, to wound at random, the foetus in the uterus with many-side consequences leading to final sterility or death. All these consequences observed despite the

new knowledge attained urge one to question the insufficiency of sexual education in urban and rural zones, on the problems, risks and responsibility faced in sexual activity.

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