## Journal of Ethnopharmacology

Volume 76, Issue 3, August 2001, Pages 263-268

# Plants used as abortifacients in the Sangmelima region of Southern Cameroon

E. Noumi and N. Y. C. Tchakonang

### 1. Introduction

The South Province of Cameroon covers an area of 47 190 km². It includes the Dja-et-Lobo, Vallée du Ntem, Ocean and Mvila Divisions. Dja-et-Lobo Division is the homeland of the Maka, Fang and Beti. The indigenous people of Sangmelima Region are the Bulu, a subtribe of the Beti tribe. The primary means of livelihood of these people are hunting, gathering and traditional agriculture. Unemployment, low income and poor living conditions lead to sex prostitution work among females. The local sex market has promoted the use of plants as aphrodisiacs (Noumi et al., 1998) for men, abortifacients for women. Abortions, which take place outside of medical facilities, often result in maternal mortality, septicemia, sterility. The objective of the present study was to survey the plants used as abortifacients in the Sangmelima region and to evaluate the pertinence of their stated effect based on a literature review.

### 2. Study area

Sangmelima is the main town of Dja-et-Lobo Division, which consists of six subdivisions, namely, Bengbis, Djoum, Oven, Mintom, Sangmelima and Zoetele (Fig. 1). Its total population was estimated at 12 105 in 1987, representing 32.3% of the population of South Province, and 11% of the total population of Cameroon (Cameroun/FNUAP, 1987). The Dja, a tributary of Congo River, crosses the region.

The study area includes Sangmelima, Zoetele, Djoum, Oven and Bengbis subdivisions. It extends within 11 °38′– 13 °43′ E longitude and 2 °11′–3 °27′ N latitude and includes a part of the Dja biosphere reserve. The climate is equatorial (Guinean type) with 4 seasons. The average annual rainfall, temperature and humidity are 1654 mm, 24 °C and 79.8%, respectively. The forests are evergreen, semi-evergreen and deciduous.

#### 3. Methodology

The study was carried out for the period of 1996–1997 in 12 localities: Bengbis, Djoum, Oven, Sangmelima, Zoetele, Mvog-Meka, Meyome-Messala and Mekom. The interview data on the name and part of the plants used, the mode of preparation, administration, and side effects were collected during field trips. Young men, older men and women, local herbalists and traditional healers were interviewed, using a structured interview form, after consent was given. Data on the side effects of the abortifacients were obtained from users or individuals who had some experience with the use of the plant. Only the plants on which information was in agreement in at least three villages were retained in the present study. Collected plants were identified using published literature (Koechling; Keraudren; Fouilloy; Vivien and Biholong) and authenticated by Dr Achoundong of the National Herbarium of Cameroon (HNC), Ministry of Agriculture. Information was compared with data found in Cameroonian and African medicinal plant books and ethnopharmacological literature (Cousteix; Kerharo and Oliver). Voucher herbarium specimens were deposited in the Department of Biological Sciences, Higher Teachers' Training College, University of Yaoundé I, Cameroon.

The plants collected and the results of the interviews are listed below in alphabetical order by the plant scientific name. Each entry gives the following data: species (family), voucher specimen number, local name in quotes (locality), purpose of its use and plant part used. Side effects, if stated, are given. The mode of preparation and route of administration are listed, and the relevant phytochemical and pharmacological literature data of some plants, in support of their effectiveness, are also given. Concerning dosages, a spoonful means approximately 10 g, a handful 40–50 g, a cup 250 ml.

**Adenia cissampeloides** Harms (Passifloraceae); Noumi 983. 'Nom angakomo' (Sangmelima, Ebolowa); abortion, fish poison; root, stem. A concentrated macerate of the roots is regularly administered in the vagina until the start of bleeding (3 days maximum). To use, leafy stems can be roasted under hot ashes and transformed into a small ball which is introduced into the vagina. A report said that the foetus died in the uterus and was ejected. Bleeding from uterus was said to be very abundant and the patient became very weak and was shaken for about 2 weeks.

.

**Albizia ferruginea** (Guill. et Perr.) Benth. (Mimosaceae); Noumi 985. 'Evuvus-esaka' (Sangmelima, Yaoundé, Ebolowa); abortion; leaves. Crushed fresh leaves are rolled into small balls, then one ball is introduced into the vagina, preferably before going to bed. The vagina is not cleaned until the onset of bleeding. The treatment is often repeated. It was reported that this treatment provoked irritations, burns, redness and even wounds and infections in the vagina.

**Basella alba L.** (Basellaceae); Noumi 1003. 'Ele lengue' (Sangmelima, Yaoundé), 'lakguegwik' (Batoufam); oxytocic; fresh leaves. Two spoonfuls of the juice of crushed leaves are drunk. The treatment is repeated as needed. It was indicated that the administration of this drug often led to multiple tears (lacerations) of the vulva.

**Bidens pilosa** L. (Asteraceae); Noumi 977. 'Mfeg-zoa' (Sangmelima), 'Okpadi' (Yaoundé); oxytocic; leaves. To use, three handfuls of leaves are boiled in 1.5 l of water until the water is reduced to 1 l. Three cups are taken orally to induce oxytocic effect within 3 h. The indicated side effects are the same as those of *B. alba*.

Ceiba pentandra (L.) Gaertn. (Bombacaceae); Noumi 995. 'Douma' (Sangmelima, Ebolowa), 'Dum' (Yaoundé), 'Bouma' (Douala), 'Djam' (Bangangte); abortion; leaf, stembark. A petiole is soaked in water for 6 h, until a resinous

gum appears at the enlarged extremity, or a fragment of stembark is soaked in water, until a resinous gum is produced at the edges. Then, the petiole is introduced into the vagina such that the gum is in contact with the cervix or the gum is mechanically placed into contact with the cervix. A report said that bleeding of the uterus started after 3 h accompanied by the opening of the cervix. Hospital nurses and illicit abortionists use speculum to introduce the side of the gummy petiole into the cervix. Another report stated that an abundant bleeding occurred for many days, before and after the expulsion of the foetus.

.

Citrus aurantifolia (Christm.) Swingle (Rutaceae); Noumi 998. 'Ofumbi beti' (Sangmelima, Yaoundé); abortion; fruit (juice). There are four recipes of drug preparation: (1) 200 ml each of whisky and *C. aurantifolia* juice are mixed, the mixture is then saturated with powdered rock salt and filtered; the solution is drunk on an empty stomach, preferably before going to bed; one report said that a violent dizziness and headache were experienced for at least 3 days; (2) kitchen salt is dissolved in a cup of water to saturation, then one cup of *C. aurantifolia* juice is added and the mixture boiled; the warm decoction is then introduced into the vagina before going to bed; irritation and burning sensation are the reported side effects; (3) half a cupful of bush honey and half a cupful of *C. aurantifolia* juice are mixed; the mixture is then drunk on an empty stomach; light abdominal pains were reported as side effects; (4) a cupful of *C. aurantifolia* juice is saturated with powdered rock salt, homogenised and filtered; the solution is then drunk on an empty stomach; light abdominal pains were reported as side effects. Preparations of *C. aurantifolia* juice are also taken when menstruation is 3 or 4 weeks late. In such a case, bleeding is said to begin about 10 h after drinking such preparations. Another report stated that the use of *C. aurantifolia* leads to menstrual cycle disorders.

\_\_\_\_\_

**Desmodium ramosissimum G. Don** (Fabaceae); Noumi 978. 'Owondo-bekon' (Sangmelima, Ebolowa, Yaoundé); abortion; leaves. Two handfuls of leaves are macerated in 1 l of water, then, a cupful is drunk once a day for 2 or 3 days. This recipe was claimed to be effective when added with *B. alba* or *B. pilosa*.

\_\_\_\_\_

**Drymaria cordata Will.** ex Roem. et Schult. (Caryophyllaceae); Noumi 1002. 'Oyaya' (Sangmelima, Ebolowa), 'Lomtokia' (Bayangam); abortion. Fresh leaves are heated under hot ashes and rounded into a small ball which is introduced into the vagina, preferably before going to bed. A report said that bleeding of the uterus began 12 h after insertion, and burning sensation and irritations were experienced.

**Erythrophleum guineensis** G. Don (Caesalpiniaceae); Noumi 990. 'Elon' (Sangmelima, Ebolowa, Yaoundé), 'Tom' (Bangangte); abortion, stembark. A piece of the stembark is placed at the bottom of the panties as a pad. It was reported that the contact with the vulva provokes the expulsion of the foetus, even if it is 6 months old. Other reported side effects included irritation and the reddening of the vulva, and that the expulsion of the foetus was accompanied by violent and persistent contractions.

------

**Maesopsis eminii** Engl. (Rhamnaceae); Noumi 1005. 'Nkala' (Sangmelima), 'Nkangela' (Yaoundé), 'Lando' (Abong-Mbang); abortion; stembark. A crushed piece of stembark is macerated for 2 h in a cup of palm wine and the solution taken orally. The authors entered the abortionist's house just when a young pregnant girl drank the maceration, and bleeding of the uterus began 2 h later.

-----

**Manihot esculenta** Crantz (Euphorbiaceae); Noumi 988. 'Mbom' (Sangmelima, Yaoundé), 'Nkwamba' (Douala), 'Kasinga' (Bangangte); abortion; leaves. A fresh leaf of the bitter variety is harvested and the enlarged end of the petiole is introduced into the vagina such that the white latex comes in contact with the cervix. Bleeding was claimed to start 6 h after. The preparation should be maintained until the foetus has been expulsed.

· · ·

**Momordia charantia** L. (Cucurbitaceae); Noumi 980. 'Eyel zom' (Sangmelima, Yaoundé); abortion; seeds, leaves. To produce abortion, ten seeds are ground and the paste divided into three small balls using saliva; a ball is then introduced into the vagina, once a day, preferably before going to bed. It was reported that the application of *M. charantia* preparation resulted in a high fever; during this time no drug was allowed to be administered; a putrid vaginal discharge resulted for 2–4 days.

**Musa sp.** (Musaceae); Noumi 986. 'Ekoan' (Sangmelima, Akonolinga, Yaoundé); oxytocic effect; young plant. A young plant is cut and the juice drunk by a woman in labour to accelerate delivery. Its claimed effect is to empower the drug effects of other plants.

**Musanga cecropioides** R. Br. (Cecropiaceae); Noumi 979. 'Assam' (Sangmelima, Ebolowa), 'Asseng' (Yaoundé), 'Bossengue' (Douala), 'Lisseng' (Bangangte); oxytocic effect; stipule protecting young leaves. About four stipules are macerated in 1 I of water, then, the maceration is drunk as needed. This recipe is claimed to empower the drug effects of other plants.

-----

**Nicotiana tabacum** L. (Solanaceae); Noumi 981. 'Tah' (Sangmelima, Ebolowa, Yaoundé), 'Depah' (Bafoussam, Foumban); abortion; leaves. 3/4 cup of hot ashes and 1/4 cup of rock salt are dissolved in four cupfuls of water, then five to ten crushed leaves of *N. tabacum* are added and left to stand for 4 h. The mixture is homogenized and filtered and the filtrate is injected into the vagina before going to bed. It was reported that the intoxication due to *N. tabacum* is terrifying in two ways: exciting and paralyzing. The patients would go into a coma for many days and some die in the process.

**Ocimum gratissimum L.** (Lamiaceae); Noumi 1001. 'Mesep' (Yaoundé, Sangmelima, Abong-Mbang), 'Masepo' (Douala); oxytocic effect; leaves. Three handfuls of leaves are boiled in 1.5 l of water and the solution is concentrated

to 1 l. This is drunk, three cups thrice a day. Abortionists also add *O. gratissimum* leaves to other abortifacient plants to reinforce their effects.

-----

**Pentaclethra macrophylla Benth.** (Mimosaceae); Noumi 997. 'Ebae' (Sangmelima, Ebolowa, Yaoundé); abortive effect; fruits, stembark. A handful of the stembark is boiled in 2 I of water and the solution is concentrated to 1 I. This is drunk, three cups thrice a day. It was reported that the effect is very painful accompanied by agonies.

\_\_\_\_\_

**Persea americana Mill.** (Lauraceae); Noumi 996. 'Fia' (Sangmelima, Yaoundé); leaves. Three handfuls of leaves are boiled in 1 I of water, the liquid drunk, one cup thrice a day. It was reported that the effect involves abundant and painful bleeding.

------

**Piptadeniastrum africanum (Hook. f.)** Brenan (Mimosaceae); Noumi 993. 'Atui' (Sangmelima, Yaoundé); oxytocic effect; stembark. A decoction is prepared from a handful of stembark in 2 l of water and 250 ml is applied as an enema at the onset of labour, which may be repeated, if necessary. The remainder of the decoction is used for external massage of the pregnant woman's belly, from top to bottom. The effect of *P. africanum* is claimed to reinforce the abortive effects of other plants.

·

**Saccharum officinarum** L. (Poaceae); Noumi 989. 'Nkog' (Sangmelima, Yaoundé); abortion; stem. The juice is sucked, which in large amounts increases the body's content of sucrose which is claimed to have a dilating action on the cervix. A report said that bleeding of the uterus started with pains and provoked disorders in the pregnancy condition, but the expulsion of the foetus is not a certainty. The patient is said to suffer intensely for many months with anemia and the risk of dying.

### 5. Discussion

As a result of our field studies among the Bulu, Fang and Maka, three ethnic groups of Sangmelima, 20 plant species with abortive properties were collected and documented. Much of the information reported in this communication, particularly on *A. cissampeloides*, *A. ferruginea*, *C. pentandra*, *D. ramosissimum*, *D. cordata*, *M. eminii*, *M. esculenta*, *P. macrophylla* and *S. officinarum* was found to be new to the literature of Cameroon medicinal plants (Cousteix; Chenu; Chenu; Noumi and Noumi). Likewise, the use of *A. cissampeloides*, *P. macrophylla*, *M. charantia*, and *M. cecropioides* is similar to its use by other African people (Raponda; Bouquet; Bouquet; Ake and Ake), thus lending support to their use in the abortion practices.

The experimental literature gives scientific basis for the use of plant species as abortifacients. Some act by their toxicity. For example, cyanogenetic principles lead to emetic chronic intoxications, abdominal troubles and collapse. Thus, *A. cissampeloides* contains cyanogenetic glucoside (Watt and Breyer-Brandwijk, 1962), *C. pentandra*, a cyanogenetic acid (Watt and Breyer-Brandwijk, 1962), *M. esculenta*, hydrogen cyanide (Wood, 1965) and a cyanogenetic glucoside (linamarine; Freize, 1938), while *E. guineensis* erythrophleine, a frog's cardiac toxin (Kerharo and Adam, 1974). *N. tabacum* leaves contain nicotine which can kill cold-blooded animals (insects, frogs) and toxic to some warm-blooded animals (dog, cat, pig and human) (Planchon and Bretin, 1946). Henry (1949) reported that the seed husk of *P. macrophylla* contains paucine, a toxic substance. A 10% stembark decoction provokes, on isolated guinea-pig uterus, durable and intensive contractions (Correia Da Silva et al., 1960).

Other plant species act by their pharmacodynamic properties and confirm their effect in inducing an abortion. According to <u>Jamwall and Anand (1962)</u>, root preparations of *M. charantia* have an arbotive action, while <u>Chopra et al. (1938)</u> reported a case of abortion during 7th month of pregnancy with a root decoction. <u>Pousset (1992)</u> mentioned the presence of an essential oil with thymol and engerol in *O. gratissimum*, as well as substances which also provoke contraction of guinea-pig's ileum and rat's intestine, raising the blood pressure. Pharmacodynamic tests conducted by <u>Feng et al. (1962)</u>, on aqueous and alcoholic extracts of *P. americana* gave the following results: toxicity in the mouse by the intraperitoneum route at doses between 0.5 and 1 g of dry leafy stems; a spasm effect on isolated intestine of a guinea pig at between 0.01 and 0.1 mg, and on the rat's uterus at 0.01 mg.

As to plant sources, they are generally obtained from wild populations. However some species, such as, *B. alba, C. aurantifolia, M. esculenta, Musa* sp., *N. tabacum, P. americana* and *S. officinarum* are grown by many people in their homestead (Erdelen et al., 1999).

During fieldwork it was surprising to notice that men, women and young people could equally identify abortive plants, and that they all praised the abortive power of *M. charantia*, nicknamed 'Miss efficient'. The practice of sexual relation by adolescent belongs to a syndrome of behavioral risk. During that period, adolescents wish to be recognized for their independence and their opinion. Because sexual maturity is reached before psychological maturity and they do not understand the risk due to their sexuality, they have no appreciation for contraceptive practices (Kamtchouing et al., 1997); as a result, girls are more likely than boys to drop out of school prematurely (Lloyd et al., 1998).

The first sex acts occur without contraceptive protection (Mensch et al., 1999). Those first relations can determine the future reproductive health of adolescents through undesired pregnancies and sexually transmitted diseases (including AIDS) (Leke, 1989). In Sangmelima, girls turn to illicit abortion. The sepsis, the hemorrhages and the traumatism that affect vital organs are their frequent complications. They also use a variety of other materials to provoke abortion, including kerosene, fork, hook, tablets of nivaquin, and fermented urine saturated with kitchen salt applied to the vagina. They swallow salted water in saturation, mixture of water, and rock salt and egg. Many cases of illicit abortion end in a hospital. In spite of the availability of intensive care, the power of antibiotics, the help of blood transfusion, some women die from elements used to abort. Damages to reproductive organs have been reported in the literature (Dixon and Leke).

Drugs destroy many parts of the genital system and lead to infertility. Deadly accidents are frequent in spite of the prohibitions of the law and religious action of the prelates in discouraging the practice. Consequently, when the population of Cameroon passed from 5 836 000 in 1970 to 10 493 655 in 1987 (a 79.8% population growth), for the same period, the population of Sangmelima region only increased from 108 000 to 121 059 inhabitants (a 12%

population growth; <u>MINPAT</u> and <u>Cameroun</u>). Practices in which plants are used to produce sterility, death, and low population growth must be prohibited. The present study has raised a patch of veil on a disturbing situation: the issues of sex in the Sangmelima region and its disastrous consequences. Its inhabitants need a special sex education

01660	Basella alba L.	Basellaceae	ele lengue (Sangmelima, Yaoundé), lakguegwik (Batoufam)	H(022) oxytocic; fresh leaves. Two spoonfuls of the juice of crushed leaves are drunk. The treatment is repeated as needed. It was indicated that the administration of this drug often led to multiple tears (lacerations) of the vulva.
02780	Ceiba pentandra (L.) Gaertn.	Bombacaceae	douma (Sangmelima, Ebolowa), dum (Yaoundé), bouma (Douala), djam (Bangangte)	H(112) abortion; leaf, stembark. A petiole is soaked in water for 6 h, until a resinous gum appears at the enlarged extremity, or a fragment of stembark is soaked in water, until a resinous gum is produced at the edges. Then, the petiole is introduced into the vagina such that the gum is in contact with the cervix or the gum is mechanically placed into contact with the cervix. A report said that bleeding of the uterus started after 3 h accompanied by the opening of the cervix. Hospital nurses and illicit abortionists use speculum to introduce the side of the gummy petiole into the cervix. Another report stated that an abundant bleeding occurred for many days, before and after the expulsion of the foetus.
03210	Citrus aurantiifolia (Christm.) Swingle	Rutaceae	ofumbi beti (Sangmelima, Yaoundé)	H(112) abortion; fruit (juice). There are four recipes of drug preparation: (1) 200 ml each of whisky and C. aurantifolia juice are mixed, the mixture is then saturated with powdered rock salt and filtered; the solution is drunk on an empty stomach, preferably before going to bed; one report said that a violent dizziness and headache were experienced for at least 3 days; (2) kitchen salt is dissolved in a cup of water to saturation, then one cup of C. aurantifolia juice is added and the mixture boiled; the warm decoction is then introduced into the vagina before going to bed; irritation and burning sensation are the reported side effects; (3) half a cupful of bush honey and half a cupful of C. aurantifolia juice are mixed; the mixture is then drunk on an empty stomach; light abdominal pains were reported as side effects; (4) a cupful of C. aurantifolia juice is saturated with powdered rock salt, homogenised and filtered; the solution is then drunk on an empty stomach; light abdominal pains were reported as side effects. Preparations of C. aurantifolia juice are also taken when menstruation is 3 or 4 weeks late. In such a case, bleeding is said to begin about 10 h after drinking such preparations. Another report stated that the use of C. aurantifolia leads to menstrual cycle disorders
05150	Drymaria cordata (L.) Willd. ex Roem. & Schult.	Caryophyllaceae	oyaya (Sangmelima, Ebolowa), Iomtokia (Bayangam)	H(112) abortion. Fresh leaves are heated under hot ashes and rounded into a small ball which is introduced into the vagina, preferably before going to bed. A report said that bleeding of the uterus began 12 h after insertion, and burning sensation and irritations were experienced.
05520	Erythrophleum guineense G. Don	Caesalpiniaceae	elon (Sangmelima, Ebolowa, Yaoundé), Tom (Bangangte)	H(112) abortion, A piece of the stembark is placed at the bottom of the panties as a pad. It was reported that the contact with the vulva provokes the expulsion of the foetus, even if it is 6 months old. Other reported side

08440	Manihot esculenta Crantz	Euphorbiaceae	mbom (Sangmelima, Yaoundé), nkwamba (Douala), kasinga (Bangangte)	effects included irritation and the reddening of the vulva, and that the expulsion of the foetus was accompanied by violent and persistent contractions  H(112) abortion; a fresh leaf of the bitter variety is harvested and the enlarged end of the petiole is introduced into the vagina such that the white latex comes in contact with the cervix. Bleeding was claimed to start 6 h after. The preparation should be maintained
08730	Momordica charantia L.	Cucurbitaceae	eyel zom (Sangmelima, Yaoundé)	until the foetus has been expulsed  H(112) abortion; seeds, leaves. To produce abortion, ten seeds are ground and the paste divided into three small balls using saliva; a ball is then introduced into the vagina, once a day, preferably before going to bed. It was reported that the application of M. charantia preparation resulted in a high fever; during this time no drug was allowed to be administered; a putrid vaginal discharge resulted for 2–4 days.
01720	Bidens pilosa L	Asteraceae	mfeg-zoa (Sangmelima), okpadi (Yaoundé);	H(022) oxytocic; leaves. To use, three handfuls of leaves are boiled in 1.5 l of water until the water is reduced to 1 l. Three cups are taken orally to induce oxytocic effect within 3 h. The indicated side effects are the same as those of B. alba.
08910	Musa sp.	Musaceae	ekoan (Sangmelima, Akonolinga, Yaoundé);	H(022) oxytocic effect; a young plant is cut and the juice drunk by a woman in labour to accelerate delivery. Its claimed effect is to empower the drug effects of other plants.
09070	Nicotiana tabacum L.	Solanaceae	tah (Sangmelima, Ebolowa, Yaoundé), depah (Bafoussam, Foumban);	H(112) abortion; leaves. 3/4 cup of hot ashes and 1/4 cup of rock salt are dissolved in four cupfuls of water, then five to ten crushed leaves of N. tabacum are added and left to stand for 4 h. The mixture is homogenized and filtered and the filtrate is injected into the vagina before going to bed. It was reported that the intoxication due to N. tabacum is terrifying in two ways: exciting and paralyzing. The patients would go into a coma for many days and some die in the process.
09170	Ocimum gratissimum L.	Lamiaceae	mesep (Yaoundé, Sangmelima, Abong-Mbang), masepo (Douala);	H(022) oxytocic effect; leaves. Three handfuls of leaves are boiled in 1.5 l of water and the solution is concentrated to 1 l. This is drunk, three cups thrice a day. Abortionists also add O. gratissimum leaves to other abortifacient plants to reinforce their effects.
09740	Pentaclethra macrophylla Benth.	Mimosaceae	ebae (Sangmelima, Ebolowa, Yaoundé)	H(112) abortive effect; fruits, stembark. A handful of the stembark is boiled in 2 I of water and the solution is concentrated to 1 I. This is drunk, three cups thrice a day. It was reported that the effect is very painful accompanied by agonies.
09880	Persea americana Mill.	Lauraceae	fia (Sangmelima, Yaoundé)	H(112) abortive .Three handfuls of leaves are boiled in 1 l of water, the liquid drunk, one cup thrice a day. It was reported that the effect involves abundant and painful bleeding
11020	Saccharum officinarum L.	Poaceae	nkog (Sangmelima, Yaoundé);	H(112) abortive, stem. The juice is sucked, which in large amounts increases the body's content of sucrose which is claimed to have a dilating action on the cervix. A report said that bleeding of the uterus started with pains

	and provoked disorders in the pregnancy condition, but the expulsion of the foetus is not a certainty. The patient is said to suffer intensely for many months with anemia and
	the risk of dying.