

A Review of Research on Plants for Fertility Regulation in Africa*

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Introduction

I have agreed to prepare this paper at a very short notice from the seminar organizers in Geneva. The paper may not therefore, give a complete result of all the research programmes going on in this subject in Africa. My topic covers a wide and fairly diversified continent whose political boundaries and ideologies occasionally makes it difficult to co-ordinate scientific results. The subject of fertility regulation, on the other hand, has not been considered a problem among Africans and has in fact, received least attention in folk medicine. Modern scientists investigating the active principles of drug plants of Africa have, therefore, quite a limited number of plants to study in this field. It is also a rather unpopular and controversial subject in most African countries which leaders, though may be for it, will not support it publicly for fear of losing his/her popularity with the citizens. There are however, a few institutions in the continent where scientists are at the preliminary stages of investigating local drug plants which have been used in traditional medicine for fertility regulation. Such institutions are mainly carrying such research under the overall umbrella of research on drug plants. A number

of us such researchers are still at the preliminary stages of identifying the fertility regulating drug plants which have been or are still being used in traditional health care. At this stage, I like to mention and commend the leading role being played by Nigerian universities, particularly the Faculty of Pharmacy of the University of Ife whose research is now at the stage of developing and testing drugs from the already identified medicinal plants. There are many other research institutions all over Africa where research into herbal drugs are currently going on. It is hoped that Dr. E.A. Sofowora's work at Ife on chemical analysis on antifertility plants in Nigeria will be made available to W.H.O. later.

African Concept of Fertility Regulation

It is true that according to African traditions, the idea of solving problems of infertility among women has been of major concern to the traditional medical practitioners in general and to the herbalists in particular. The wealth of an African elder or leader has, for a long time, been measured in terms of the number of cattle, wives and children he owns. This has been possible due to large tracts of land people used

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to own and also to the fact that different homes needed many hands to work in the farms in order to make life economically and socially viable. To a married woman, giving birth and especially having many children was a prestige and a great honour from God. Fertility regulation among Africans has, therefore, been less practised than infertility control. Generally, all traditional medicine men and women I have interviewed on this subject usually refer to the treatment of infertility, and less of the reverse. A number of Africans however, are now realising the scarcity of land, and the benefits of having a limited number of children. Polygamy is already dying a natural death in many societies, while the subject of fertility regulation is now major interest and concern especially among the educated Africans.

While the married women have been allowed to produce as many children as possible, the

unmarried ones (girls) have not on the other hand, been permitted to have children. A number of drug plants have, not with standing been used by Africans to procure abortion. Although contraceptive plants have not been widely studied in African folk medicine, abortifacients or ecboolics (drugs which causes abortion) are however, the oldest and widely used effective fertility control drugs. Administering abortion has been one of the most difficult problems traditional practitioners have faced, firstly because most plants procuring abortion are strong and can be poisonous if the dosage is exceeded, and secondly because they are treating a very delicate and complicated human body. The following are some of the drug plants used particularly in North-Eastern, Eastern throughout Central to Southern Africa as abortifacients or ecboolics.

Scientific name	How prepared and used
Anacardiaceae (Mango Family) <i>Ozoroa mucronata</i>	A decoction of the roots drunk as specified by the traditional doctor. Fresh roots are also chewed as an aphrodisiac.
Asclepiadaceae (Milkweed Family) <i>Pachycarpus lineolatus</i> <i>Pergularia daemia</i>	Roots chewed acts both as an abortifacient and as an aphrodisiac. Fresh or dry roots are chewed as an abortifacient. The plant yields a bitter glucoside whose action resembles that of pituitrin on the uterus, that is causing contraction of the uterus and inducing labour.
Balsaminaceae (Balsam Family) <i>Impatiens wallerana</i>	An infusion of leaves and roots is drunk as an abortifacient.
Bignoniaceae (Bignonia or Jacaranda Family) <i>Kigelia africana</i> (The sausage tree)	The decoction of the bark and leaves is drunk as an abortifacient. The bark contains a bitter principle and a tannic acid. Roasted seeds are usually mixed with various kinds of native beer, but can cause abortion and even be poisonous if left for too long. The fruit is commonly added to beer, and acts as an aphrodisiac.
Boragianaceae (Borage Family) <i>Cordia quarensis</i>	Fresh roots are chewed and the juice swallowed to procure abortion.

Scientific name	How prepared and used
<i>Cordia sinensis</i>	Another method of preparing the abortifacient drug is by root infusion or decoction. The use of this plant is common among the Masai of East Africa, and the women chew the roots as a contraceptive.
Combretaceae (Combretum Family)	This has similar usage as <i>C. quarensis</i> , which suggests a possibility of a similar active principle being contained in the genus <i>Cordia</i> .
<i>Combretum molle</i>	Root decoction is drunk as an abortifacient.
Crassulaceae (Orpine Family)	Concoctions of both roots and leaves from an individual species is drunk as an abortifacient.
<i>Kalanchoe</i> spp.	This plant is used particular by the Baganda women of Uganda who drink an infusion of both the leaves and roots as an abortifacient and ecbolic. The plant contains a bitter principle or alkaloid called momordicine and a saponin. No poisoning effects reported.
Cucurbitaceae (Cucumber Family)	Cooked leaves are eaten like vegetables and the leaf decoction drunk to procure abortion. The decoction is also given to women in labour to hasten birth. No poisoning effects reported.
<i>Momordica foetida</i>	Infusion of leaves drunk as an abortifacient. The active principle contained is an essential oil.
Labiatae (Mint Family)	About 100ml. of root decoction is drunk twice a day for two consecutive days as an abortifacient.
<i>Plectranthus albus</i>	Root decoction is drunk as an ecbolic. An infusion of the bark is drunk as an ecbolic.
Leguminosae (Pea Family)	Root decoction or concoction is drunk to procure abortion. The plant is, however, known to contain a highly toxic bitter principle called superbine, and also a colchicine.
<i>Neorautanenia mitis</i>	The bulb decoction is drunk as an ecbolic, however, the whole plant is known to be toxic to both human and livestock.
Ormocarpum flavum	Root and leaf decoction is drunk as an ecbolic. The plant contains some mucilage.
<i>Pterocarpus angolensis</i>	An infusion of the whole shoot including leaves is drunk as an ecbolic. The plant contain several compounds, among them an alkaloid called ephedrine.
Liliaceae (Lily Family)	
<i>Gloriosa superba</i>	
<i>Urginea burkei</i>	
Malvaceae (Cotton Family)	
<i>Abutilon grandiflorum</i>	
<i>Sida cordifolia</i>	
Mrysinaceae (Myrsine Family)	

Scientific name	How prepared and used
<i>Maesa lanceolata</i>	About 100ml. of bark decoction is drunk twice a day and repeated for three consecutive days as an ecbolic. The plant contains a glucoside and embelic acid.
Passifloraceae (Passion-Fruit Family)	
<i>Adenia volkensii</i>	The root decoction is used to procure abortion, but the roots also contains a poisonous principle—a cynogenetic glucoside and a toxalbumin.
Rhamnaceae (Buckthorn Family)	
<i>Zizyphus abyssinica</i>	Root decoction is taken as an ecbolic. The active principle is some tannin.
Rosaceae (Rose Family)	
<i>Hagenia abyssinica</i>	An infusion of the bark or inflorescence is drunk as an ecbolic. The female flowers of this plant have also been used successfully as anthelmintic while the male flowers are strongly emetic.
Scrophulariaceae (Snapdragon Family)	
<i>Rhamphicarpa heuglinii</i>	Root decoction is drunk as an ecbolic.
<i>Rhamphicarpa veronicifolia</i>	Used as above.
Umbelliferae (Carrot Family)	
<i>Petroselinum hortense</i>	Leaf infusion is drunk to procure abortion during the early stages of pregnancy. The active principles contained in the plant leaves are apiol and myristin.
Verbenaceae (Lantana Family)	
<i>Clerodendrum rotundifolium</i>	Leaf infusion is drunk as an ecbolic. Root infusion is drunk at the rate of 100~200ml. per week as a contraceptive.

Conclusion

There is a major concern being shown by many African governments at the high rate of population growth in the continent. Many leaders are already aware of the serious economic drawback their countries would face unless they control the growth rate of their population. Any new discoveries of birth control drugs with limited or no side effects would therefore, be most welcomed. The plants I have discussed in this paper represents my original research in local plants used for fertility regulation. It is therefore, my sincere hope that the Task Force group will select a few for further screening and tests.

References

- Kokwaro, J.O.: *Medicinal Plants of East Africa*, East African Literature Bureau, Nairobi (1976)
- Kokwaro, J.O.: *Classification of East African Crops*, Kenya Literature Bureau, Nairobi (1980)
- Lindsay, R.S.: *Medicinal Plants of Marakwet, Kenya*, Royal Botanic Gardens, Kew, England (1978)
- Watt, J. & Breyer-Brandwijk, M.: *Medicinal and Poisonous Plants of Southern and Eastern Africa*, E. & S. Livingston Ltd. Edinburgh (1962)
- Wong Ting Fook, W.T.H.: *The Medicinal Plants of Mauritius*, ENDA, Dakar (1980)