Traditional Medicinal Plants
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Experience on the use of Tanzanian medicinal plants for the last decade (1979-1989)

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ABSTRACT

This paper highlights on the various methods of herbal therapeutics. It indicates where a herb is administered as an infusion, a decoction, a maceration, a juice, a lotion, a powder etc. It is to be noted that the gathered plants, whether growing wild or cultivated, should be, as far as possible, free of contaminated dangerous chemicals (e.g. DDT). In this paper the author presents the common herbs with their botanical, local, and Swahili names. Be also touches on a few common tropical diseases. A brief classification of herbs and reference to dangerous drug groups, are also given. A note on herbal preparation of insecticides and insect repellents is also provided.

Introduction

Prior to the introduction of the "germ theory" in Europe in the 19th century, homeopathists and traditional healers were brand names in health care deliveries. After this, the beginning of what is called "Western Medicine" took shape and monopoly. That was also the beginning of the belief that because the plants are surrounding us, and they cost nothing, or very little, people could not believe on their efficacy. Traditional healers - cum - herbalists bad never advocated their practices as absolute. Nature is absolute, and even man's intelligence on the use of natural resources does not warrant absolution. A traditional doctor embraces it in his belief that in case of failure to cure a patient, he must refer the patient to a "Western Medicine" doctor, but this is not the case in the *vice versa* aspect. This appears to be a tendency to declare *"oneself"* absolute. It is from this angle of perception that a global and intergovernmental clarification should be revisited.

The little information in this paper is not conclusive but is an attempt to show how herbal medicine can develop towards the so- called "Western Medicine". It is not indicative of a change in therapeutic principles, but a modernization of the therapeutic systems of herbal medicine. At this juncture, and for the purpose of this conference, the paper will give some highlights on the use of various plants for treating the common tropical diseases.

Disease diagnosis

I feel it is worth mentioning that my experience in traditional medicine does not reflect the explicit experience of a traditional healer. In most cases, a patient is required to have his blood sample, urine or stool examined at a routine level, in our clinical laboratory. Cases of AFB positive, cultural and sensitivity, and gram smear, are referred to hospitals with a modern laboratory for comments. This concept of healing, I feel, is to be left to the herbs' self pharmacodynamics and only to be catalysed by man's intelligence. It is like in modern medicine: a Doctor "does not" cure, it is the drug that cures, under a Doctor's prescription. So being cured, and being healed are resultant action of man's therapeutics, intelligence on herbs, or drugs.

Furthermore, this paper shall not deal with the manigfaltigen disease causations or disease etiologies, sometimes classified as personalistic etiologies and naturalistic etiologies. However, since the latter is believed to be caused by natural forces, like heat, wind, and cold, or natural conditions, like the imbalance of basic body nutrients and elements, it is vivid that the paper shall deal with it. In that, after diagnosis, the answer to the question "what", and sometime "how" is answered.

The question of "who" caused the disease (personalistic etiology) is, therefore, uncalled for. Nonetheless, it would appear too unpluralistic not to unveil the fact that I have met many times cases of personalistic etiologies in the community.

These etiologies ranged from godly punishments, vague evil forces, witchcraft, evil spirits, to even hereditary malpractices of ancestors' disciplines. I, therefore, admit that in this line, I have not gathered any experience nor administered any pattern of health care utility, save a few placebos when the family of the patient unveils the causation, as having been due to hereditary malpractices of ancestor disciplines.

Storage requirements and expiry dates

The importance of correct adherence to proper storage facilities - cum - requirements does not need to be overemphasized. While it is explicitly clear for modern drugs to have their manufacturers's dates and thereafter their expected expiry dates, the case is complicated in herbal medicines. One was tempted to take the time of correct harvesting of the herbal medicine as the date of "manufacture", in comparison with modern medicines. That means the "manufacturer's" date in herbal medicine starts off at the time when the plant parts away with its herbal portion. But when it comes to herbal properties embodied in fruits, it is when the fruit is ripe, and, therefore, ready for use. In some fruits like bananas and pawpaws, it does not take too long before over- ripening and decay.

For some nuts, it is better to take the time it has dried properly as the date to start with. Similarly, the bulbs of onions are taken to be ripe and ready for use when they are dry. But here again, it does not take too long before regermination.

The packing of drugs for better and proper storage to enhance the required (longer) expiry dates, is not a manner of only modern pharmaceutical drugs manufacturers. Traditional practitioners have known this for quite a long time. Herbal medicines have been stored in various sizes of gourds, earthenware pots, and when necessary, even in porcelain. Although there was a concept of "secretising" the herbal values, the main reason was also to keep it "air tight", and free from direct sunlight. The earthenware pots were ideal for burning some herbs to ashes without the danger of cracking the pot as a result of heat. Even in the ultimate storage, it is easier and more convenient to pour the powder ashes from a little opening. This is important, especially when several herbs are required to be mixed at very small ratios.

It is also known that keeping herbal drugs in such containers makes them free of moisture and unnecessary heat. A further element is of cultural expression. These containers are not expensive, and are easy to make. They are also useful for depicting culture and traditional capability. Such containers include baskets made of coconut plant leaves, bags made of animal hides and sea shells, to mention but a few. The more "dangerous" the drug is, a much more durable the container that is used. In this way herbal drugs could be kept in forms of liquid, powder, or solid.

The expiry dates of herbal medicines very much depend on the types of herbs, the duration of preparation before use, and the quality of storage against water, heat, or

direct sunlight (where it is not required). Herbal medicines decompose easily when in "contact" with these conditions.

It is presumed that the expiry dates of herbal drugs in powder form is shorter than the same drug stored in the form of a bark, or as seed. Still longer is when the same drug is kept "intact", with the piece of plant itself. Herbal drugs from green plant leaves, do not stay long unless the prescription calls for the use of dried leaves. It is recommended that when a mixture of herbs is required, some in form of roots, barks, and leaves or flowers, leaves and flowers should be harvested last, preferably on the same day of preparation and use.

Examples of medicinal plants and the diseases they cure

***1. Pears: Pyrus communis* (local name: *mapeasi*)**

These are used to treat diuretic and urinary complaints. The medicine is prepared from an infusion and decoction of barks, leaves, or flowers, either of one or of all leaves, dried in the shade. The quantities are as follows: 100 g to 1000 ml of water. The decoction is allowed to set for 15-30 minutes, and dosage administered is 200-250 ml t.d.s. for adults, and 50-100 ml t.d.s. for children over 5 years. This is for a period of 2 - 3 days.

2. Apples Pyrus malus

These are used to supply the body with vitamins, sugars, enzymes and minerals. They are also used for the treatment of rheumatism, gout, liver and kidney diseases. They are also used as a laxative, as a stimulant and for the constriction of distended blood vessels. The parts of the plants which are used are leaves, flowers, buds and barks which are dried in the shade.

When eaten (1.0 to 1.5 kg a day) the fruits are good for the digestive system, the liver, and the kidneys. When prepared as a medicine, the infusion and decoction is prepared from leaves, flowers, buds and bark (150 g to 1000 ml of water). The decoction is allowed to set for 30 minutes and the dosage is 200 - 250ml bid or tds for adults, and 50 - 100 ml bid or tds for children. The infusion of flowers alone is good for sore throats and coughs, and is administered for two days.

3. Cabbages*: *Brassica oleracea

The plants are used to make a decoction for the treatment of cirrhosis of the liver, dysentery, upset bowels, and also as a vermifuge. They are also used as a decongestant, for treating tonsillitis and the loss of voice. In their use as a vermifuge the juice of the plant is squeezed through fine cloth. The dosage is 15 ml tds for children and 30 ml tds for adults. When used as a decongestant, squeezed syrup of the plant extract is heated up with an equal amount of sugar and honey,

and then left to cool. The dosage used is 15 ml tds for children and 30 ml tds for adults. When preparing a decoction for use as a purifying agent 2-3 large leaves are placed in 1000 ml of water and the decoction is allowed to set for 30 min. to 1 hr. The dosage is 200 ml tds for adults and 50 - 100 ml tds for children.

4. Carrots: Daucus sativus

The plants are used to supply the body with Vitamins A, B, C, D & E. It is used to treat anaemia, general weakness, scurvy, etc. It also has antidiuretic properties, and is also a vermifuge. It *i*s administered as a decoction, as a juice and as a syrup as described above. The dosage for adults and for children is as indicated above. For treating ulcers, burns and eczema a pulp is prepared of four carrots in 1000 ml of water. A further dilution may be necessary for burns. Then a hand-bath, or a foot-bath, etc. is administered. The frequency recommended is three baths per day.

5. Eucalyptus: Eucaliptus globulus

The plant is used as an antiseptic; for the treatment of asthma, bronchitis, tonsillitis, colds, urinary troubles and hemorrhages. It is used as an infusion and as a decoction of leaves. 100 g is broken, dried leaves are added to 1000 ml of water. The decoction is allowed to settle for 1/2 hrs. The dosage applied is 200 ml tds and 50 - 100 ml tds for adults and children, respectively. When used as a powder, 15-20 g are added in a cup of tea or in honey, on bread, or on tablespoon, once daily, for asthma and bronchitis. For external use, 100 g are added to 1000 ml of water and applied as foot-hand-hip-baths, as dressing lotion, and enema.

6. Lemon: Citrus medica, Citrus limon

The plant is used as a sedative, as a tonic, as a vermifuge, as antispasmodic, as a diuretic substance, and for the supply of vitamins A, B, B_2, and C. In its use, 100 g of dried leaves are added to 1000 ml of water, and the decoction is allowed to set for 30 min.

The dosage for adults and children are stated above. For external use, and as a gargle, the juice of one lemon is added to 1000 ml of water. For use in treating acid stomach, the juice is mixed with honey, or with water, at one lemon to 2000ml. When used as a vermifuge one lemon juice is mixed with castor oil instead of water, at a proportion of 1 lemon juice to 15 ml of castor oil. Please note that lemon is not highly recommended for patients or people with gout, rheumatism, and kidney problems because of the acidity of its juice.

7. Maize: Zea mays

The plant is useful as a sedative and also as a diuretic. It is also useful in easing pains of renal colic, bladder stones, cyctitis, gout, and rheumatism. In its use an

infusion of maize tassels (about 1000 ml of water) is prepared. The dosage recommended is four cupfuls a day (adult). For external use one half of such a quantity is added to 1000 ml of water. This is added to the painful area (same for foot and hand baths).

8. Onions: Allium cepa

These are used for treatment of diuretic, antiscorbutic (rich in Vitamin C), and antidiabetic (has glucoquinone that lowers blood sugar level). It is also useful as a vermifuge and as an antiseptic. Furthermore, it has aphrodisiac qualities, and is therefore good for impotent people. In its use an infusion of two large onions (sliced) in 1000 ml of water is administered. This should be all in one day. It is also useful as an antipoison. In this use it is prepared as above, but it is taken for 3-4 days, consecutively. When used as a vermifuge, 4 to 5 onions are treated with 1000 ml of water and sweetened with honey (as it boils). The dosage recommended is 200 - 300 ml tds for adults. For the treatment of diuretic cases 4 large crushed onions are mixed with 1000 ml of white wine, and then 100 gm of honey are added. The mixture is allowed to set for 14 days. The dosage recommended is 15 ml tds for adults. Onions can also be prepared for tinctures, poultices, juices, foot baths, and hand baths, and also for ointments.

9. Artemisia afra (Fivi)

This is used as an antimalarial. For its preparation, green or dried leaves are boiled for 20 minutes. Alternatively a powder of dried leaves is placed in a hot water decoction for 15 minutes and filtered with clean cloth. The dosage recommended is 100 ml tds for adults, and 15 to 20 to 40 ml tds for children over 5 years. If in powder form, 1 tablespoonful is added to 100 ml of a hot water decoction. At home a child may need a body-bath of 1/2 cup of powder, to 1 bucket water b.d. For patients used to drinking a lot of water these may be given sugarcane juice, or water sweetened with sugar. An hour after the administration of the treatment, the patient's temperature may rise, and, therefore, there may arise a need for a tepid sponge.

10. Aristolochia densivenis (Unkulwe)

The plant is used for the preparation of antisnake bite antidotes. It is thus a source of a snake venom antidote. For the administration of the First Aid, the snake's teeth are taken off the bitten area of the body. The patient is then tied tightly 15 cm upward from the bitten spot. For the preparation of the plant extract a 1/4 of teaspoonful of the powder of the plant, or the corresponding piece of bark, root chew, and swallow saliva, is mixed with one tablespoon of water. The chewed stuff is then taken to the bitten spot. The area is then bandaged, and the patient is taken to the hospital. The patient may need much water and even vomit a tittle.

For a poisoned stomach (food poisoning), 3/4 cu cm of a piece of bark or root is chewed quickly and swallowed with much water (2-3 glasses). In this treatment the patient may vomit the poison immediately. He may also purge. The patient should use fatty soups, and soft foods for 3-4 days. He should also visit the hospital.

11. Warburgia ugandensis (Mlifu), Ocotea usambarensis (Kulo), and Myrica salicifolia (Mshegheshe)

These plants are used for treatment of rheumatic and spasmodic patients.
For *Warburgia* and *Ocotea* the part used is the bark. For *Myrica* it is the root. In the preparations, the barks and roots should be mixed in equal quantities, 1:1. The mixture is pounded to a powder. The dosage recommended is 5 ml to 100 ml of hot soup tds, and the treatment is continued until the patient feels better.

During and after the therapy the patient should use protein-and carbohydrate-rich foods. He should also not be subjected to fatigue. If the drug is to be used by a number of patients, and also for longer days, the mixed powder should be made to suffice for 4 weeks. The other remaining drug should be kept intact with the bark or root and should be powdered only as, and when required.

12. Deinbollia borbonica (Mbwakambwaka), Ximenia caffra (*Mtundwi*), and *Balanitbes aegyptiaca (Mkonga)*

These plants are useful for the treatment of hernia. For all of them it is the root which is used. In their preparation, the roots are taken fresh or dry. 7.5 cm pieces are cut into and 4 -5 smaller pieces, boiled with beef bones for 1 hr, and allowed to cool, but not to get cold. On the dosage, 100 ml of the mixture at tds are administered for 4-5 days.

Each of the plants above can be prepared separately. In each case the patient should not be subjected to fatigue; he should not drink much water; he should not be subjected even to light duties which will require him to bend for longer periods; and he should visit the hospital.

13. Acacia schweinfurthii (Kerefu-mzitu), Cassia didymobotrya (Muinu)

Roots of the plants are useful for the treatment of asthmatic patients. In the preparation of the plants for medicinal use, the roots are pounded separately. 200 g extracts of each plant are mixed with 20 g of pounded salt. On the dosage, 1 teaspoonful of powder is chewed and swallowed. This is administered for 2-3 days, or even longer. For children 1/4 teaspoonful is used, also for 2-3 days.

It is also recommended that the patients should avoid alcohol and smoking. They should stay in well ventilated rooms, and should avoid cold water, both for body wash or for drinking. Additionally the patients should not be subjected to fatigue;

and their food should also contain no pepper. Their tea could be sweetened with honey, if possible, instead of sweetening with industrial sugar.

14. Abrus precatorius (Lufyambo)

The plant is used for treating impotence (for males). For its preparation, roots of the plant are dried in the shade, ground to a powder, and mixed with a powder of pound salt. The mixture is chewed and swallowed. The treatment is administered for 3 to 4 days.

It is also recommended that the patient could use dried ground nuts and drink a lot of water. The patient could also use much onion salad, and/or an onion decoction. The patient should also eat protein - rich foods. Wherever possible he should also "discourage" the feelings of impotence.

15. Plants used as insecticides and repellents

In an experiment done at Lushoto early in 1986, during the outbreak of plague in the district, the following herbs were found to be effective against fleas. These could thus find application as insecticides:

(a) *Derris elliptica:* The active part of the plant is the root tuber. A powder is extracted and used to prepare an effective liquid.

(b) *Tephrosia vogellii:* The active parts of the plant are the green stems, the leaves, and the seeds. These parts of the plant are used to prepare an effective liquid extract.

(c) *Neorautanenia mitis:* The active part of the plant is the tuber. The tuber is processed into a powder, and this is subsequently used to make an effective liquid extract.

(d) *Nicotiana tabacum:* The active parts of the plants are the leaves and the young shoots. These are also used to make an effective liquid extract.

Some plants are also effective as insect repellents. These include:

(a) *Ocimum suave* (Msubasha): The effective parts are the leaves.

(b) *Lippia javanica* (Mvuti): The effective parts are the leaves.

(c) *Cinnamomum camphora* (Camphor Leaves): The effective parts are also leaves.

The preparation of the insecticides from the tobacco leaves is as follows:

1/2 - 1 kg of cured tobacco leaf or waste are placed in 2 gallons of water. This is boiled and allowed to simmer for a while. The accrued liquid, after straining, may, if not too strong, be used straight for spraying or it may be slowly diluted with water, until it is of the desired strength.

In order to make it more effective 30 ml of soft soap are added to each gallon of emulsion.

The preparation of tobacco smoke can be effected as follows: tobacco, or pieces of paper steeped in tobacco liquid extract, are burnt without a flame. Each of these plant parts may be used as fumigants, by the method of burning without a flame, in houses infected by fleas just as in tobacco smoke.

Classification of Herbal Drugs into Dangerous Drug Groups

The classification of drugs is not one man's job. This section is just an indication of an attempt to draw peoples' attention that there are dangerous herbs "in the market", which attain similar levels of danger as dangers inherent in modern medicine.

Discussion

As has been mentioned before, this paper has attempted to document traditional experiences. It does not, in any way, depict substantial research findings on herbal medicines. It is also worth noting that most of the herbs included are those practised on the Usambara Mountains, and to a certain extent also the Amani Mountains, in Muheza District, Tanga Region.

The herbs as contained in this paper are just a few of the many herbs used in these areas. On the issue of conserving, planting, and the furtherance of research, for example to the extent of planning four herbal pharmaceutical industries, centres like the East African Silvicultural Institute at Lushoto and the National Institute for Malaria Research at Amani, should be put to task, in collaboration with The Traditional Medicine Research Unit of the Muhimbili Medical Centre, Dar es Salaam. It is my sincere hope that the analysis of herbs made on this paper, could be a small, but significant pointer on the way of systematically itemizing herbal drugs and their various uses in the country, i.e. in the different ethnic tribes of the United Republic of Tanzania. Such a strategy can only be achieved through countrywide teamwork. The further aim of itemizing the herbal drugs with their botanical names, is that when it comes to global collaboration and co- ordination, it should be easier for any country to explore the herbal therapeutics of one plant used in different ways, in different countries. When such a co-ordination shall have been "fully" accomplished, then we could think about establishing a "global" Herbal Pharmacopoeia. I wish such a dream to come true, as we enter the year 2000.