

HEALTH AND MEDICINE IN THE SAHARA

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Abstract: *Health and medicine in the Sahara.* Changes of economical and political conditions in the Saharan countries during the last decade forced to reconsider the health systems in a regional as well as local scale. The traditional medicines of the various cultures will play an important role in these processes. The traditional medicine is not the medicine of the poor, before the introduction of the European medicine it assured the health care. Since that time it served as a parallel- or cooperation- medicine to the European one. In times of degradation of public structures it takes again its place as an important health care system of the people concerned.

Key words: Sahara, physical environment, traditional medicine, restoring of health system

Introduction

Health and medicine systems in the Sahara have many traits in common with other parts of Africa (cf. SHABOU 1995). Today the health situation of the population is deplorable in many countries. However the Republic of Niger - as an example for Saharan/Sahelian - country saw times of a relative wealth from uranium exploitation up to the mid 1980ies. Thus a health system of the European type could be established, which covered more or less the country.

In the relation of about 45000 persons per physician and the concentration of medical care to towns and the dependency of about 80% of the population on local healers, the government started very early to adapt to „public health“ (MOTCHO 1994). From the early 1960ies on a lot of medical personal was formed. Smaller groups of personal with a limited formation and equipment should assure in villages the basic care concerning hygiene, assistance with birth and diagnosis of the main diseases. In parallel the state assured the production of a basic repertoire of medicaments and its distribution.

The health system had a hierarchical structure with dispensaries (local medical stations) or maternities (mother care stations) at the base and hospitals in the greater towns. The equipment of these stations was limited; however in comparison with adjacent countries the basic was present. The consultation was for free, but medicaments were not. The state installed a chain of popular pharmacies in order to lower the prices of the medicaments in comparison to private pharmacies. In parallel there were several private physicians and hospitals.

The economic decline of the last decades caused the decay of the state run health system. In addition the civil war of the 1990ies and the present rebellions in the Central Sahara reduced governmental structures and caused severe shortages of medical supply.

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Today it is one of the most important goals of the Saharan countries to restore a functional health system for their population. In this context also the Traditional medicines are rediscussed for their position in these new health systems.

However an understanding and evaluation of the traditional medicines is often obscured by misunderstanding or pretension. For the one they are widely taken as backwards compared to the European medicine, but for the other there is an esoteric interest from the western societies or it is adapted as alternative medicines often misunderstanding the basic nature of them. In contrast to this there also is a serious economic interest for these traditions regarding them as sources for new substances to be exploited for the European medicine.

The nature of the Traditional medicines

As Traditional medicines we understand all those, which did exist already before the introduction of the European (western, modern) medicine and which since that time were active either separately or in cooperation with the European medicine. This goes along with the WHO characterisations (WHO 2002, 2009). Questions of concurrence are often discussed, however there are mostly prejudgements within. The Traditional medicines in the Sahara consist for the most of the herbal medicine, the Islamic medicine and the Magic/Pre-Islamic medicines (cf. Fig 1). If one looks more close to these medicines, one will see, that a very old base still influence and intermingle with the present traditions (HIELSCHER 1992, HUMAN 1933, HUREIKI 2000, PFLEIDERER und BITTMANN 1985, de ROSNY 1994).

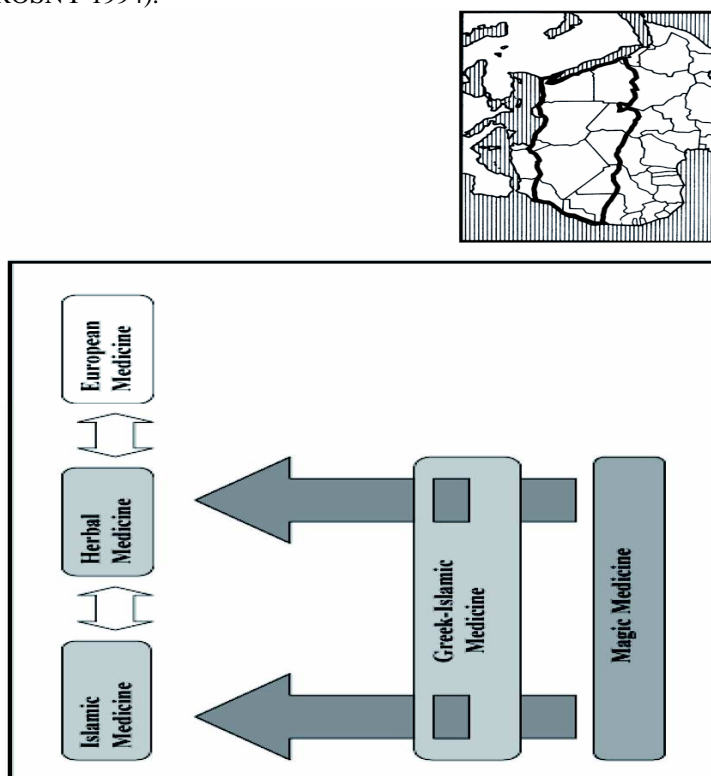


Fig. 1. The general system of the different medicines in the Sahara and their interactions

We have to remind that the European medicine is individual oriented and a treatment is based on an understanding of symptoms in order to regulate the physical problem of the respective person. In contrast to them the Traditional medicine has an integral-holistic vision. Each person lives in a world, which is inhabited by ancestors and ghosts and thus one has to fulfil their demands too. Thus everybody is ought to hold an equilibrium between its present situation and that of the ancestors and ghosts. Sickness in this sense is regarded as a disorder in the world, which has to be repaired by curing the person concerned. This is the Magic medicine, still acting as a base for the different kinds of traditional medicines.

The Arabian conquest of the Maghreb in the 8th century was followed by the spread of Islam in northern and western Africa. In many aspects the knowledge and traditions of the Greek antique were preserved by the Arabs and incorporated in an own philosophical system. It had the basic structure of a double equilibrium of the world between the components „hot“ and „cold“ as well as „wet“ and „dry“. In case of disorder of this equilibrium it was necessary to restore it with help of antagonistic measures. Diseases, which were seen as „hot“ should be treated with „cold“ remedies. The several branches of the African Islam did incorporate parts of the old magic religions or they just remained active.

These main bases are still active today and they are distributed to different parts of the society. They have in common, that they represent an integral / holistic type of medicine which is close to the original term of healing.

The European medicine did spread with the colonial systems but for a long time it was hardly accepted. However, the large scale employment of antibiotics in the 1950ies lead to the defeat of the great plagues such as framboesia, tuberculosis or the different types of syphilis. Since that time there is a real concurrence between the different medicines, and a sick person may choose his own type of treatment, depending of the accessibility of medicines and medicaments.

However, on should not forget, that the traditional medicines regained their former importance in all regions, where out of economic collapses or civil war people had no longer access to a treatment in the European medical system. Moreover the nomadic part of the societies had always difficulties to reach European medical treatment. The situation became more difficult in the 1980ies, because very often the transfer of the traditional knowledge was endangered out of a lack of confidence to the younger generation, which was familiar with modern medicaments and treatment and had a curious regard to the traditional medicine. Thus there was – and still is – a serious risk of loosing an important part of wisdom and thus of resources for a renewed health system.

Normally the sick person proceeds in a series of treatments (cf. Fig. 2). In most cases contact a healer or phytotherapist. They are normally equipped and experienced to treat the ordinary sicknesses and health problems. Beyond this each healer is specialised to treat one certain disease. Most healers have also preceded network. Thus, they also may send the patient to another healer with a specialisation adapted to the respective person.

In case of non-success the patient will try with the ablutions and amulets of the marabut/imam. These items are considered as medicaments. In most cases the marabut stays in a vivid concurrence to the phytotherapist, because Traditional medicine is not for free. The marabut demands payment in advance whereas phytotherapy is to be regulated only by success. However, some family one found a solution in having both the healer and the marabut as family members. European medicine very often is only contacted, when the traditional medicines failed. However, with time cooperation between the healers and medicines developed more and more.

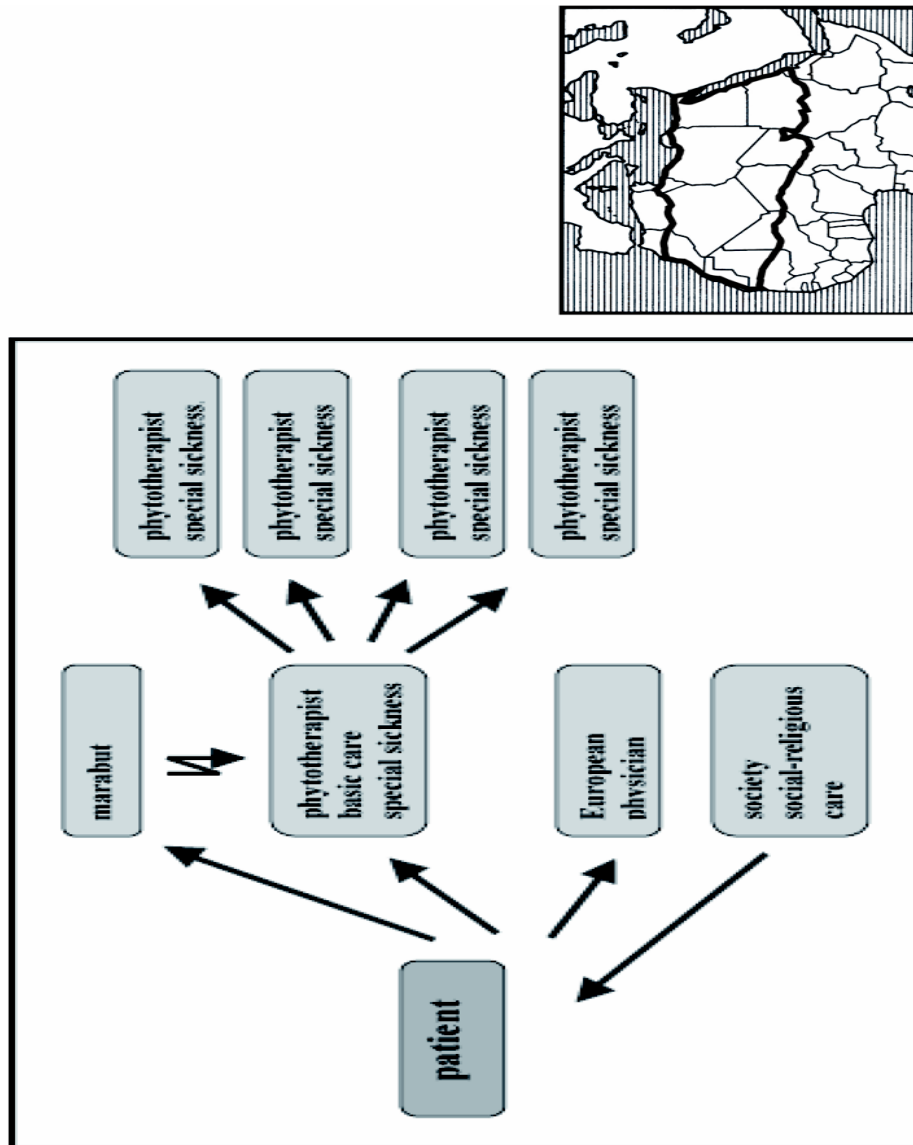


Fig. 2. Scheme of the relations of a patient to the different medicines and of the society to the patient.

In contrast to these active choices of the sick, in case of psychological disorders or depressions the society becomes active. People take care of the sick with several measures such as trance or fumigations and try to cure him. These activities still incorporate many traits of the Magic medicine.

The physical environment

The block diagrams of figure 3 depict the main landscape types between the Mediterranean and the northern Sudan. The Saharan landscape system (33, 34) comprises the semidesert (c, a sparse diffuse shrub community), desert (d) and Saharan savannas (g). Desert is to define as a region where permanent life is only possible on favoured places.

Achabs represent a second strategy of life. Accidental rainfall is answered by many therophytes which are obliged to fulfil their lifecycles with the limited amount of water. This phenomenon is characteristic for the Sahara and the northern savannas. An altitudinal change is visible by the change to the semidesert in the Ahaggar Mts/ Algeria (e) and to the savanna in the Air Mts./Niger (f). The boundaries of the desert both to the semidesert in the North (d) as to the savanna in the South (g) are sharp and stable in the secular scale. Man is forced to adapt to the limited resources. Horticulture or tree growing is only possible in oasis's and animal keeping is the most adaptive economy to exploit aleatoric resources (Schulz et al. 2009).

The main diseases in the Sahara

The harsh environment not only causes problems to earn its living for the people but it also provokes a series of burdens and diseases.

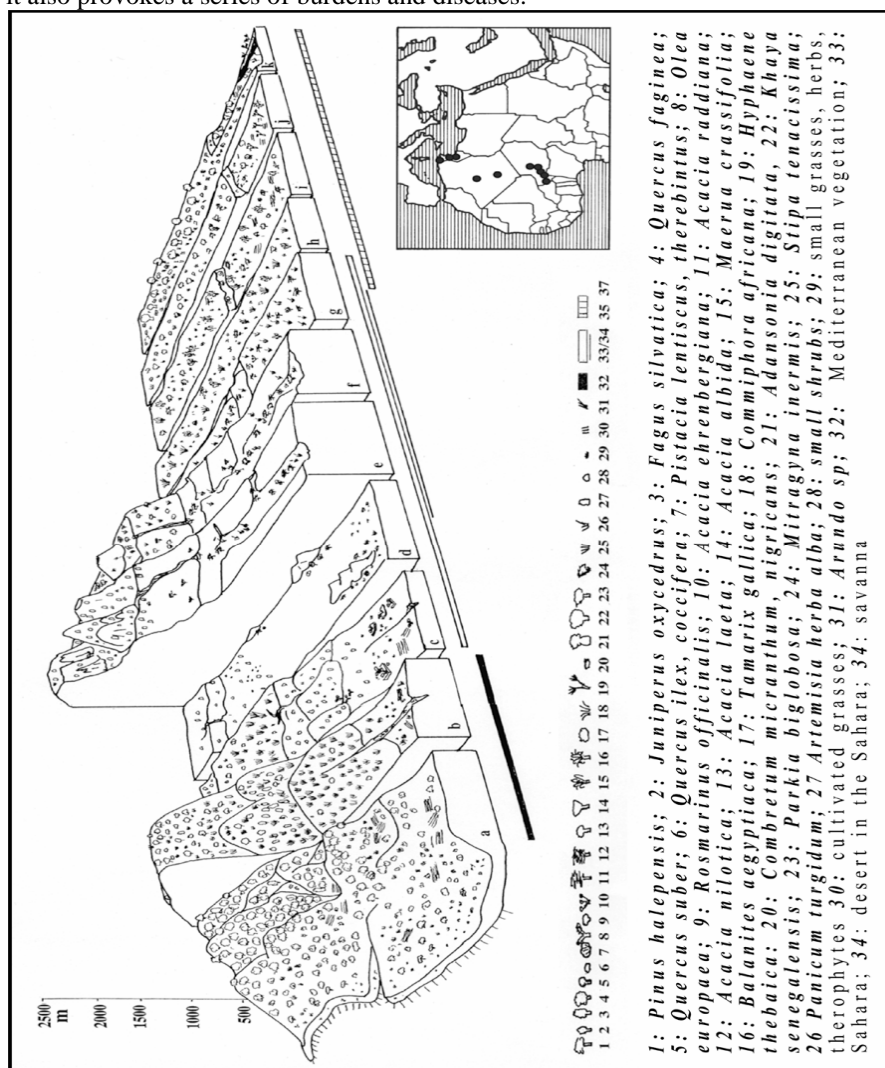


Fig. 3. Block diagram showing the main vegetation types across the Sahara from the Mediterranean to the northern Sudan (Schulz et al. 2009 modified)

In the southern Sahara still malaria is the severest burden and still the greatest killer followed by respiratory and intestinal diseases (diarrhoea and dysentery). Afterwards there come pneumonias / tuberculosis, rubella, meningitis or cholera (OUSSEINI et al. 202). With the exception of malaria, which is still spreading, this series stands also for the other parts of the Sahara.

Numerous are arthritic or rheumatic problems as a result of hard work and insufficient protection against winter cold. In addition venereal diseases are very common (Hureiki 2000). The spectra and burden of diseases are directed by two other factors too, by the access to clean water and by the nutrition state of the population.

The diseases and in conveniences commonly treated with traditional measures are the colds, intestinal problems, colic's, wounds, fevers including malaria, schistosomiasis, snake or scorpion bites, bone ruptures and rheumatisms. Moreover there are venereal diseases in all stages, but there is a psychological restriction to talk about.

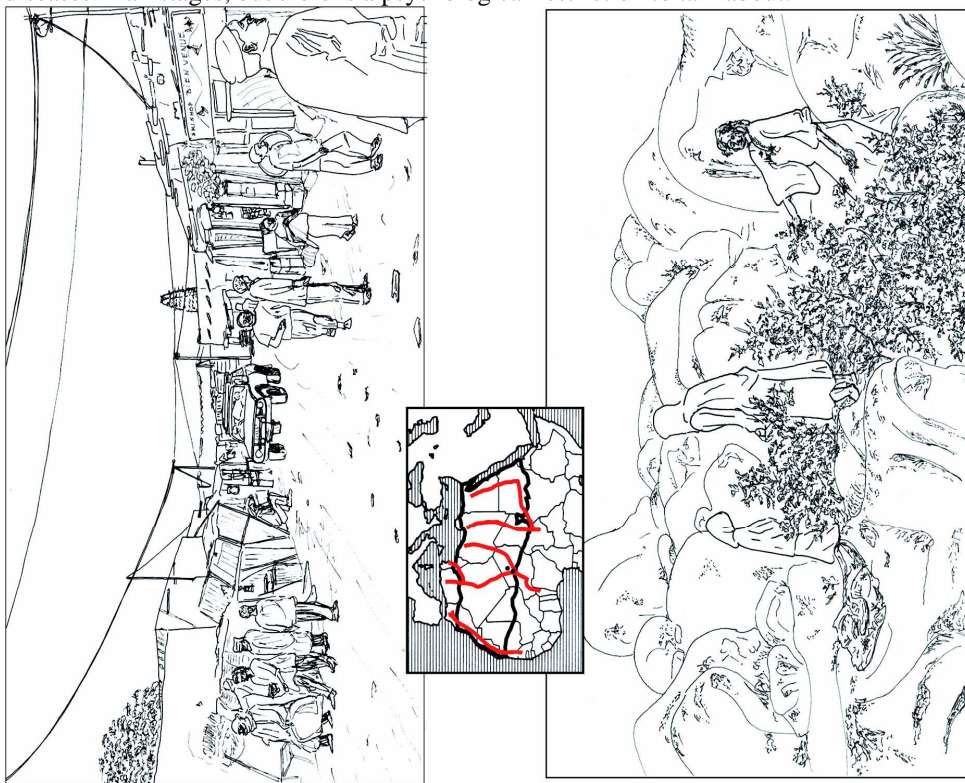


Fig 4. The different resources in the traditional medicines symbolised by the market of Agadez and by gathering women in the granite blocks of the Bagzan Air Mts. Also shown are the limits of the Sahara and the main trade routes

Organisation and supply of the Traditional medicines

The treatment of a sick person is not only varies with the different branches of Traditional or Western medicines but also in a regional context. There is a main difference between the spectra of medicaments in town markets (a Market medicine) and the direct treatment by a healer in the small villages or camps, where he may work with his own stock and experience (a Bush medicine).

On the Saharan markets one will find a similar spectrum of medical plants, which is caused by the long distance trade between the northern Sudan and the northern Sahara.

The forests of the Atlas Mts. and areas south of them serve with lichens (*Parmotrema* sp.), rose buds (*Rosa damascaeana*) and wormwood (*Artemisia herba alba*). The northern Sahara gives *Artemisia judaica*. The Ahaggar Mts. are famous for myrtle (*Myrtus nivellei*). From Sudan and southern Sahel come Kinkeliba (*Combretum micranthum*), *Khaya senegalensis*, *Sclerocarya birrea*, *Anogeissus leiocarpus*. *Acacia nilotica*, *Acacia raddiana* and *Commiphora africana* stand for the Saharan part. However, it is visible, that plants from the local environment are rarely sold

Many clients are looking for plants they know themselves in order to regulate their problems. Others come with a prescription of a consulted healer to be served. There is a difference between pure merchants and skilled people, which run a pharmacy and may counsel out of their own knowledge. The tea glass, a handful or the little cup are the common quantities for the plants or plant mixtures.

In contrast to the offer on the town markets healers in villages and camps mainly use plants of the region itself. Thus these plants are also freshly collected for the different patients. However each healer holds a stock of dried plants. Apart of the regional leaf and bark mixtures the healers in the Air Mts /Niger also employ imported plants, which mainly come from the Atlas or Ahaggar Mountains (Algeria) because they are famous for their quality. However, plants and barks from the Sahel are less employed because the respected species are often present in the mountains.

A good example for the remedies is the leaf composition ILATAN from the Bagzan Massif. in the Air Mts (Niger). It contains leafs and fruits from: *Acacia laeta*, *Acacia raddiana*, *Commiphora africana*, *Dichrostachys cinerea*, *Rhus tripartita*, *Grewia bicolor*, *Grewia tenax*, *Lavandula coronopifolia*, *Melhanian denhamii*, *Ocimum basilicum*, *Commicarpus helenae*, *Lantana salvifolia*, *Leucas martinicensis*, *Reseda villosa*, *Solanum incanum*, *Solanum nigrum*, *Vernonia cinerea*. (Schulz and Merkt 1996). Very often it is modified according to the sickness of the respected patient. This mixture is well known and commercialised down to the southern Sahel. Parallel to the medical purposes it is taken as enforcement and/ or as a condiment for the millet or goat cheese. Besides selling goat cheese this mixture is an important income source because it is changed 1:100 against millet or sold in an equivalent scale.

As a sign for the importance of the magic components there are strict rules for the gathering of plants. Not more than three handfuls shall be collected from each plant, and the ghost settling the respective trees of herbs must be calmed before by a good act for instance by giving a biscuit to a child (Spittler 1989).

Drugs and poisons

There is only little information on the drug consumption or tradition, exceeding tobacco or tea. However the incorporation of hallucinogenous plants in herb mixtures or the visible harvest of these plants are telling about *Datura*, *Hyoscyamus*, *Solanum nigrum* or *S. incanum*. Also *Rizinus communis* is often exploited. Not to forget is the knowledge, tradition and practice of poisons. *Caralluma* is still used for dogs or shakals and *Hyoscyamus falezlez* is famous for the sudden end of the French military expedition „Mission Flatters “ near Tamanrasset at the end of the 19th century. Comparable to it, in the northern Sahara there is the well-known „borbor“ mixture, mostly based on *Hyoscyamus* and still very effective. On the other side *Hyoscyamus*, *Datura* and in the North *Cannabis* are used as painkillers and anaesthetics for surgery

The preparation of medicinal plants

The ordinary way to prepare and use medicinal plants is infusion or decoction, but also powder is employed. Traditional medicaments are often prepared as mixtures of

different plants or minerals. An alcalinisation (reduction to ash, mixture with urine, ash or various minerals) is employed to activate their ingredients. Also a mixture with fat is common in order to solute active substances such as essential oils. These plants or plant mixtures are not only employed to treat distinct symptoms, but they also shall serve to restore an equilibrium lost by the patient in the sense of the basic philosophy explained above.

The surgery

The small surgery is the domain of the blacksmiths. Even they are responsible for circumcision, dental treatment bone setting, or cure of wounds after fighting's and thus necessary for a village; their place in the respective society is marginal. They receive a suspicious regard from the people, because their experience with fires poses them to the magic world. This also gives them the chance to solve difficult problems in the society and to initiate complicated negotiations (cf. Spittler 1989).

Gathering of information

Research on traditional medicine is difficult, because knowledge on plants and their use is transferred only in a confidential situation (HIELSCHER 1992, PFLEIDERER and BICHMANN 1985). However, in a common research project in the Air Mts /N-Niger of us (ADAMOU) already knew the healers since long time and thus information could be collected during fieldwork with the healers, which assured the knowledge of plants, vernacular names and modes of use for alimentation and medicine (SCHULZ and ADAMOU 1997, SCHULZ et al. 2001, 2004). It was evident, that some items could hardly be treated such as drug consume or venereal diseases. However the drug situation could be estimated by the harvesting of the respective plants.

Further development of the traditional medicines. Formation and standardisation.

The Traditional medicines in the Sahara – here especially the herbal medicine - is faced to two main problems. For the one it is the deplorable knowledge of many healers or merchants in some regions (BELLAKDAR 1997, KEITA 1997). For long times there were only few possibilities for an education and thus the merchants are only traders but rarely healers. In Mali there are some initiatives to change that system (KEITA 1985). A central Institute is focussed on the development and creation of a traditional pharmacopy. There also is an international initiative to collect the knowledge on traditional medicine and make it accessible by the PHARMEL program (LEJOLY 1997).

The central institute in Mali (INRPMT) focussed also on the second problem of Traditional herb medicine, which is the standardisation of the products (KEITA 1997). Also in Niger one tried to establish a standardisation according the German system /DAB (MASSOW and RAUWALD 1997). In Mali one succeeded to develop standardised medicaments against cough, dysentery, hepatitis and constipation and also against malaria (KEITA 1997). The demand for standardisation is to align the traditional herb medicine to the European one in their preference of clear and unequivocal products. However the principal difficulty lies in the different – integral - conception of the Traditional medicine and in the individuality of the healers and their experiences. On the other side there are some institutions which deal with the further formation of healers or tradipracticants and which try to lower the financial burden by the development of simple and trustworthy medicaments. There also is the initiative to reduce the part of obscurantism on this field.

Conclusion

The restoration of a health system in Saharan countries must be built on several pillars; among them the different medicines represent only some parts. Education is an important base to build up a prevention of diseases. Also it is necessary to care about access to clean water, which especially in the arid part of the countries is one of the greatest problems. Looking to the different medicines it is a question of combination, parallelism or cooperation between them, but also the governmental structures are necessary and their cooperation with other groups. Centralised structures for example are a base to organise vaccination campaigns.

The traditional herbal medicine will occupy an important place in such a system, independently on their official position. Before the conquest of the European medicine it was the main part of the health care and it took over the role during the times of decay of governmental structures. The Traditional herb medicine is not only the medicine of the poor, for the patient it cost the same amount of money as other medicines. In times of an acceptable economy these medicines are options and in times of decay of governmental structures, of war or of simple no access it is again the only chance for the patient. In the last years the value of these medicines got reaccepted and the tradition will continue.

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