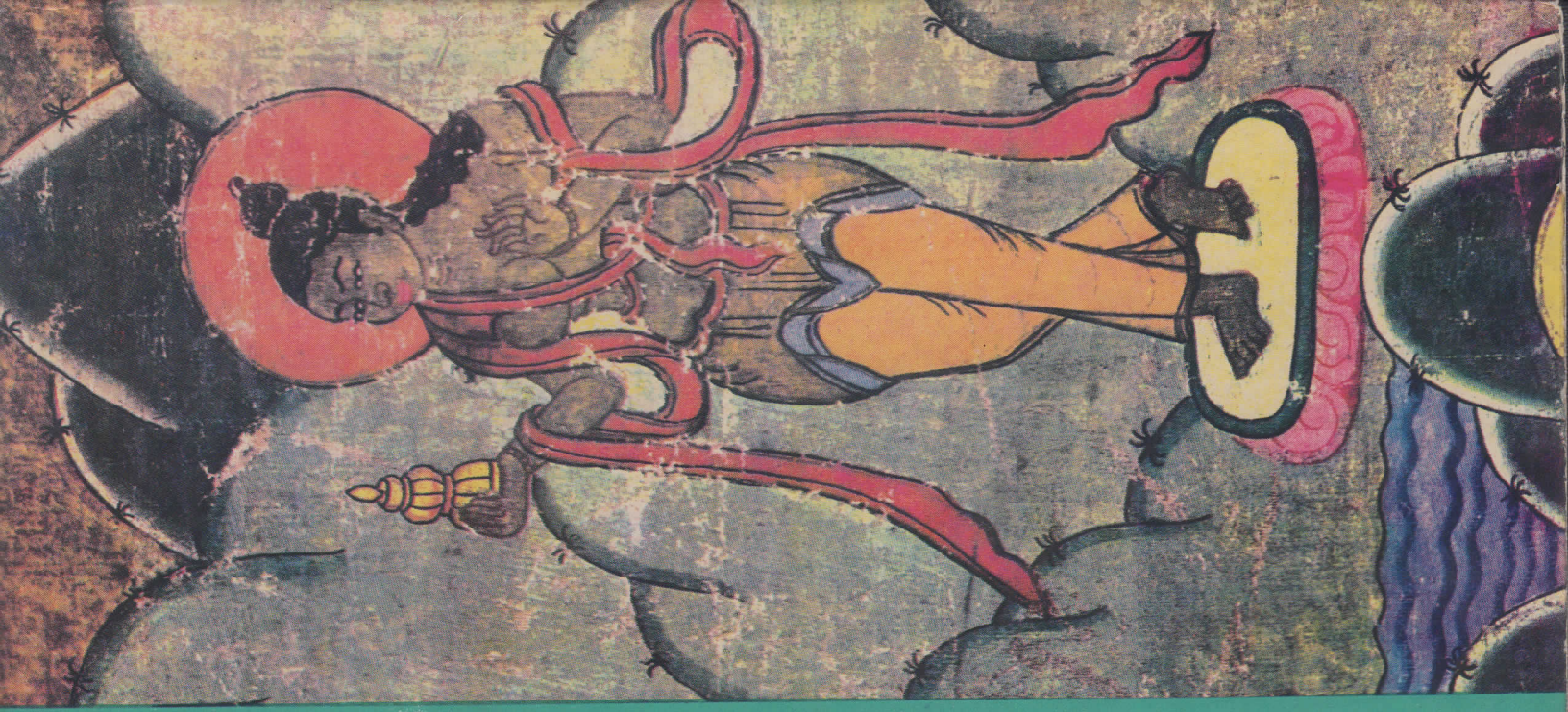


PHARMACOPOEIA OF TIBETAN MEDICINE

Vaidya
Bhagwan
Dash



Indian Medical Series No. 17

PHARMACOPOEIA

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OF
TIBETAN MEDICINE

VEDA BHAGWAN DASH
B.A.M.S., M.D., PH.D.

Shri Sargur Publications

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TIBETAN MEDICINE**

VAIDYA BHAGWAN DASH

D.A.M.S., H.P.A., M.A., PH.D.

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Preface

In view of the present day popularity of Tibetan medicine among the people of Tibet, Bhutan, Mongolia, northern borders of India and in foreign countries, the need for a Pharmacopoeia need no emphasis here. It will be a prelude to the preparation of a standard Pharmacopoeia for single drugs and compound preparations used by Tibetan physicians. It will also provide information about the ingredients and methods of preparation of these recipes to persons who are not acquainted with the traditional Tibetan culture including medicine. Earlier, the author published a formulary of Tibetan Medicine containing only 164 recipes. In the present work "Pharmacopoeia of Tibetan Medicine," description of 205 recipes is provided. Pharmacopoeia is a book of standards. The problems and methods of standardization are high-lighted in the introduction.

Thousands of recipes are described in Tibetan classics and used by Tibetan physicians in their practice. Only the selected and more popular ones are included in this volume. These are culled from authentic medical texts. Some of the these classical recipes have been amended by the physicians to make them more effective. Some recipes which are not mentioned in classics but popularly used by physicians are also included in this work.

Mode of Arrangement

Eventhough ten categories of recipes are used in Tibetan medicine, the most popular ones are in the form of powder and pill. In the present monograph, mostly powders and pills are described except a few decoctions, *khaṇḍas* and medicated butter. In certain cases powders are also prepared in the form of pills and *vice versa*. In view of this, the recipes in this monograph are arranged in their Tibetan alphabetical order indicating the pharmaceutical process involved in the "method of preparation". There are however some minor discrepancies in this alphabetical order for which I apologise and seek the indulgence of scholars.

Description of Ingredients

For convenience of reference, ingredients are numbered and listed in vertical column. The name(s) of the recipe and ingredients are given in romanised form for those who are not acquainted with Tibetan alphabets. The romanisation table is given hereafter.

The part(s) of the drug, used in the recipe is given in abbreviated form in English against each item. Explanation of these abbreviations are listed in the prefatory matter. The quantity of each drug for manufacturing a unit of the recipe is given against each ingredient, in metric.

Methods of Preparation

General methods of preparation are given in Appendix-II. Only the special methods of preparation (*las thabs*) are given after the description of each recipe.

Indications

These recipes are used for the treatment of several ailments. Only such ailments and conditions, for which

these are popularly and commonly used, are given in each recipe under the caption "*nus pa*".

Dose

The dose (*thun*) in which these recipes are generally administered and the time of administration are indicated for each recipe.

Vehicles

Tibetan recipes are generally used in different conditions with different types of vehicles (*smān rta*). These are also indicated for each recipe along with precautions, if any.

Methods of Purification & Calcination

Some vegetable products and minerals, used in the recipes of Tibetan medicine, are toxic and these should be added to the recipes after detoxication and purification. Only after making them suitable for digestion, absorption and assimilation in the body, these are added to recipes. These processes are described in Appendix-I. These methods are equally adopted in both Tibetan medicine and Ayurveda, the traditional medicine of India.

Appendix-II deals with general methods of preparation of various categories of recipes included in this monograph.

Index-I deals with the names of medicinal plants, animal products and metals including minerals, gems and precious stones used in these recipes. Wherever possible, the Sanskrit, Botanical and English names are provided below these items. Variants and variations of these ingredients, if any, are given below the item by indenting. Parts of these drugs used in recipes are also indicated against each item.

Index-II deals with the diseases and complaints in which these recipes are used.

The author is well aware of his limitations for undertaking this work. It should have been appropriately done by a committee of experts. The present work will at least serve as a basic paper, if and when such a committee of experts is constituted to undertake this project. Identification of drugs and deciding upon the ingredients, including their parts and quantities in recipes, are shrouded in the mist of controversies, both in Tibetan medicine as also in Ayurveda. There will, therefore, be complaints about shortcomings of this Formulary. The author while compiling it, is well aware of such eventualities in future. According to the celebrated Sanskrit poet Mahimā Bhaṭṭa:

*"Yukto' yamātmasadṛśāt prati me prayatno
nāstyeva tajjagati sarvamanoharam yat
kecijjvalanti vikasantyapare nimila-
ntyanye yadabhyudayabhāji jagatpradīpe"*

"The present effort is directed towards people of identical way of thinking. There is nothing in this world which will be appeasing to every body. When the sun rises, there are some who dazzle, there are others who blossom and there is a third category, who get withered."

This monograph, it is hoped will be useful for students, teachers and research workers of Tibetan medicine, Ayurveda and Modern Medicine and will be of interest to those interested in Indology and Tibetology in general.

ACKNOWLEDGEMENTS

During the course of last several years, the author had to consult several Tibetan doctors and experts for compiling this monograph. The author is, however, highly indebted to Druṅ 'tsho Pema Dorji, Superintendent of Traditional Medicine of Bhutan, Dr. Khaidev, the Ex-Director of the Institute of Traditional Medicine in Mongolia and their staff members for the immense help rendered in the

preparation of this volume. Right from the beginning till the preparation of press copy Ku. Kanchan Gupta (M.A., M.Ed.) was of constant help. I pray for all success in her life and may Lord Buddha endow her with the merits that will accrue by the use of this monograph for the treatment of ailments of the suffering humanity.

BHAGWAN DASH

Introduction

Man has eternally endeavoured to keep himself free from three types of miseries, viz, (1) miseries arising out of ones own physique, (2) miseries caused by factors including organisms surrounding him and, (3) miseries caused by supernatural elements. Man's aspirations to overcome these miseries are reflected in his three eternal desires, viz, (1) the desire to live a long-healthy life. (2) the desire to acquire wealth for use in bad days, and (3) the desire to attain salvation or *nirvāṇa* after death.

For a long and healthy life, different drugs, diet and drinks were repeatedly experimented upon and suitable as well as therapeutically useful ones were selected and propagated. Some of these were used empirically as found in the folk-traditions of several countries. In the centres of ancient civilization, the use of drugs were rationalised with scientific concepts and explanations. Like other countries, Tibet had its folk-medicine that was later enriched by the classical and rational system of medicine which came from India, Mongolia and China. Therefore, in Tibet, at present, a symbiotic and harmonious relationship exists between the folk-stream and classical stream, each borrowing from and lending to the other.

Traditional medicine of Tibet, commonly known as "*Gso ba rig pa*" or "*Tshe yi rig byed*" is very popular amongst the people of that country and also among those of the neighbouring countries like Bhutan, Mongolia, Buriyatiya

northern border region of India and Nepal and some other parts of China. According to Tibetan tradition, the traditional science of medicine is one of the five major groups of knowledge (*rig gnas*= *vidyā sthāna*), and its practitioners are variously called *Gso rig pa* or *Em chi* (mostly in Mongolia and Ladakh in India) and *Druñ 'tsho* (in Bhutan). Most of the important texts on the fundamental and applied aspects of this medical science are written in Tibetan language as well as script, and therefore, not easily accessible to outsiders. These works were printed by wooden block printing method (xylograph) in important educational centres of Tibet, Mongolia and Bhutan. These works are gradually becoming rare. Several works were composed by compiling therapeutically efficacious recipes. Such books, enlisting the vast experience of Tibetan physicians are gradually becoming extant.

FUNDAMENTALS OF DRUG COMPOSITION AND DRUG ACTION

Tibetan medicine has its unique way of explaining the drug composition and drug action, which is significantly different from modern physical and chemical concepts. Some of these fundamental concepts are given below:

I. *Sa, chu, me, rhuñ and nam 'kha*

There are the 'five basic elements' which enter into the composition of all matter in the universe, including drugs, diet, drinks and the physique of sentient creatures. In the body, these are present in the form of *ñes pa*, *lus zuñs* and *dri ma*, and in drugs, diet as well as drinks, these basic elements are manifested in the form of *ro* (taste), *nus pa* (potency) and *yon tan* (attributes). While diagnosing a disease and suggesting a treatment, this concept is always kept in view.

II. *Nes pa*

Literally, this term means 'any evil, misfortune or injurious occurrence'. In medicine, this term connotes the three basic functional units of the body, viz., *rluñ*, *mkhris pa* and *bad kan*. Each of these three has five divisions and they control different physiological functions of the body. These are composed of five basic elements inasmuch as in *rluñ* the basic element called *rluñ* is predominant; in *mkhris pa*, *me* is predominant and *bad kan* is dominated by both *sa* and *chu*. These *ñes pas* undergo qualitative and quantitative changes during different seasons and because of certain food, drinks and regimens. This results in disease and decay, and several measures, including medicines, food, drinks and regimens, are prescribed for the correction of these morbid changes.

III. *Lus zuñs*

This term implies the 'basic tissue elements' of the body which are seven in number, viz., chyle, blood, muscle, fat bone, bone-marrow and semen. Any qualitative and quantitative change in these tissue elements caused by improper food, drink and regimen expose them to be vitiated by the *ñes*, which results in diseases and death. To correct this morbid condition, various types of drugs, diet, drinks and regimens are prescribed.

IV. *Dri ma*

In the context of medicine, this term connotes the 'digestive as well as metabolic waste products' Some of these remain inside for the sustenance of the body and the remaining are eliminated. The three important waste products are stool, urine and sweat. If they are not properly eliminated from the body, then the three *ñes* and seven *lus zuñs* get vitiated resulting in disease and death.

V. Ro

This term implies 'taste' of drugs, diet and drinks. There are six types of tastes, viz., sweet, sour, saline, pungent, bitter and astringent. These tastes are manifested in drugs and food because of the predominance of one or the other of the basic elements. Suitability of a particular drug, diet or drink to correct the morbid changes in the body is determined on the basis of these tastes. Basic elements responsible for these tastes are as follows:

- (i) *Mnar ba* (*madhura rasa* or sweet taste) indicates the predominance of *sa* (*prthvī mahābhūta*) and *chu* (*jala mahābhūta*);
- (ii) *Skur ba* (*amla rasa* or sour taste) indicates the predominance of *sa* (*prthvī mahābhūta*) and *me* (*agni mahābhūta*);
- (iii) *Lan tsa ba* (*lavaṇa rasa* or saline taste) indicates predominance of *chu* (*jala mahābhūta*) and *me* (*agni mahābhūta*);
- (iv) *Tsa ba* (*kaṭu rasa* or pungent taste) indicates the predominance of *me* (*agni mahābhūta*) and *rluñ* (*vāyu mahābhūta*); and
- (v) *Kha ba* (*tikta rasa* or bitter taste) indicates the predominance of *rluñ* (*vāyu mahābhūta*) and *nam 'kha* (*ākāśa mahābhūta*).
- (vi) *Bska ba* (*kaṣāya rasa* or astringent taste) indicates the predominance of *sa* (*prthvī mahābhūta*) and *rluñ* (*vāyu mahābhūta*).

VI. Ņus pa

This term implies the potency of a drug. Depending upon their potency, in the traditional medicine of Tibet, drugs are classified into two categories, viz., hot and cold. For the purpose of treatment, hot drugs are chosen for diseases caused by cold and vice versa.

VII. Yon tan

This term implies the attribute or quality of a drug. Depending upon the predominance of one or the other of the basic elements, seventeen (or twenty) such attributes are manifested in the drug. While selecting the drug, diet and drink for the treatment of a disease or for the maintenance of positive health, these attributes are always kept in view.

After ascertaining the permutation and combination of tastes, the composition of drugs is ascertained, and their suitability for curing the disease is determined. The exact requirement of the patient (in terms of basic elements) is ascertained from the signs and symptoms of diseases and by examining the patient, including his pulse, stool, urine, tongue, sound, touch, eyes and physical features.

BROAD CLASSIFICATION OF DRUGS, DIET AND DRINKS

Ingredients used in Tibetan medicine are broadly classified into two categories, viz., those obtained from living or animated sources (*sems can*), and others derived from inanimate sources (*mi sems can*). The latter is further classified into two categories, viz., (1) natural products like metals, minerals, gems, precious stones, and (2) artificially prepared ones. In Tibetan medicine artificially prepared substances like synthetic chemicals are not used.

The former, viz., those derived from living or animated sources are further divided into two groups, viz., (1) drugs, etc., derived from vegetable sources and (2) those derived from animals. Vegetable kingdom is further sub-divided into four categories viz., (1) trees having fruits but no apparent flowers, (2) trees having both fruits & flowers, (3) creepers and (4) annual herbs. Animal products are similarly sub-divided into four categories, viz., (1) mammals, (2) those born of eggs, (3) those born of heat and moisture, and (4) those born out of the earth.

SPECIFIC CLASSIFICATION

Drugs used in Tibetan medicine are also classified in a different way keeping in view the pharmaceutical process involved in their manufacture. These are broadly classified into three categories, viz., (A) vegetable products, (B) metals, minerals, gems and precious stones, and (C) animal products.

(A) *Vegetable products* are further classified into five categories as follows:

- (1) *Sin sman* (herbs and trees generally used in powder-form after drying). This includes fruits, flowers, beans, stems, whole plant, roots and barks of several plants.
- (2) *Thañ sman* (herbs generally used in decoction or tea-form).
- (3) *Sno sman* (herbs generally used when freshly collected either in juice or paste-form). This includes roots, leaves, flowers, berries, whole plant or any part of the whole plant.
- (4) *Lo to gi sman* (cultivated medicinal plants) This includes beared cereals, pulses, and roots, etc., which are used in uncooked form.
- (5) *Rtsi sman* (aromatic exudates and gum resins)

(B) Minerals, metals, gems and precious stones are further classified into our categories as follows:

- (1) *Rin po che'i sman* (gems and precious stones). These are further subdivided into two categories, viz., those which can be melted and others which cannot be melted.
- (2) *Rdo sman* (those derived from rocks and minerals). These are further subdivided into two categories, viz.,

those which can be melted and & others which cannot be melted.

- (3) *Sa sman* (medicinal earths). These are further subdivided into two categories, viz., natural and artificially prepared.
- (4) *Lan tsha'i sman* (salts). These are further subdivided into two categories, viz., natural and artificially prepared.

(C) *Animal products* are further subdivided into eight categories as follows:

- (1) Group of gallinaceous birds;
- (2) Group of birds who eat by tearing through beaks;
- (3) Group of herbivorous animals;
- (4) Group of wild animals;
- (5) Group of animals who eat by snatching;
- (6) Group of domesticated animals;
- (7) Group of animals who live in holes & borrows; and
- (8) Group of animals who live inside or near water.

CLASSIFICATION OF DRUGS FOR THE PURPOSE OF STANDARDIZATION

Keeping in view their need for standardization, Tibetan traditional drugs, in current use, can be classified into the following four categories:

(1) Scientifically studied drugs

Because of the non-availability of allopathic drugs for several diseases and because of the side toxic reactions of some of these drugs in current use, scientists all over the world are taking keen interest to study the traditional drugs.

Many of these traditional drugs are already identified botanically, studied pharmacognostically and screened chemically and clinically. Some of these drugs are given below:

- (1) *Gu gu lu* (*Commiphora mukul*). Found to be effective in arthritis and hyper-cholesteremia.
- (2) *Siñ mñr* (*Glycyrrhiza glabra*). Found to be effective in respiratory disorders and joint pain.
- (3) *Hoñ len* (*Picrorhiza kurroa*). Found to be effective in liver disorders.
- (4) *Brag zun* (Momiyo, an exudate from stones) Found to be effective in genito-urinary disorders.

2. Popular Non-toxic drugs

Some drugs, which are popularly used in Tibetan medicine and which are absolutely non-toxic are as follows:

- (1) *A ru ra* (*Terminalia chebula*)
- (2) *Ba ru ra* (*Terminalia belerica*)
- (3) *Skyu ru ra* (*Emblica officinalis*)
- (4) *Bc'a lga* (*Zingiber officinalis*)
- (5) *Na le sam* (*Piper nigrum*)
- (6) *Pi pi liñ* (*Piper longum*)

(3) Effective but toxic drugs

Some of the traditional drugs are therapeutically very effective; but in raw and unprocessed form, these are very toxic. Preparations containing such drugs should be specifically standardized to ensure their detoxification. Such drugs are as follows:

- (1) *Btsan dug* (*Aconitum palmatum*)
- (2) *Ko byi* (*Strychnos nux-vomica*)

(4) Costly drugs of rare use

Some recipes though rarely used, contain very costly ingredients as follows:

- (1) *Rdo rje pha lam* (diamond)
- (2) *Mu tig* (pearl)
- (3) *Gla rtsi* (musk)

Such recipes need careful attention to ensure inclusion of such costly ingredients in prescribed quantity in the recipes.

(5) Hereditary drugs:

Since these drugs are not mentioned in classics but used only traditionally, their clinical efficacy should be ascertained during standardization.

DIFFICULTY IN GETTING RAW-DRUGS

The physicians and manufacturers equally face difficulties in getting some of the raw drugs for preparing recipes because of the following:

(1) Non-availability

Some therapeutically potent drugs have become rare and some of them are just not available to physicians and manufacturers.

For example: *Lcags sbrul*.

(2) Multiplicity of names

Several drugs used in Tibetan traditional medicine have multiple names. In different regions of the Tibet and also in India, these drugs are called and are known with different names. In some cases drugs are written with secret names (*gab tu*) because of which physicians and manufacturers face difficulties in identifying them.

(3) Many drugs with the same name

This is a major cause of controversy to identify the correct drug. For example: *Dzā ti* which means both nut-meg fruit and jasmin flower also.

(4) Non-availability of specific variety

Some drugs have several varieties—each variety having specific therapeutic properties. For example: *A ru ra* has five varieties. But now a days only two varieties are available and these available ones are used in medicine, thereby altering some of the therapeutic attributes of the recipe.

(5) Exotic drugs

Some drugs though used extensively in Tibetan traditional medicine are just not available in that country and even in India. For example: *Sin kun* which is imported from Afganistan, Iran and Iraq. The importers (even at the source) adulterate this useful drug with cheap gums. Because of the strong smell, even expert physicians fail to locate adulteration and the use of such adulterated stuff makes the recipe therapeutically less effective.

(6) Adulteration

Some drugs are unintentionally adulterated because of the ignorance of the drug-collectors. For example: *Ru rta* and *Ma nu*.

(7) Synthetic preparations

Some drugs popularly used in Tibetan traditional medicine are not available in their natural form. For example: *Ga bur* and *Cu gañ*. In the market, mostly synthetic preparations are available which can be used only externally and these should never be used internally. Use of such synthetic preparations reduce the efficacy of drugs.

SINGLE DRUGS AND COMPOUND PREPARATIONS

In Tibetan traditional medicine both single drugs and compound preparations are used for therapeutic purposes. These compound preparations contain several ingredients. These are developed through centuries by the experienced physicians. The main purposes of such combinations are as follows:

- (1) To obtain synergistic action;
- (2) To accumulate combined action or to make the recipe multi-faceted or multi-dimentional in action;
- (3) To neutralise toxicity of some therapeutically potent drugs;
- (4) To obtain quicker effects; and
- (5) To produce some specific actions.

PHARMACEUTICAL PROCESSES

Although, now a days, generally powders and pills are used in practice, in Tibetan medical literature, different pharmaceutical processes are described for preparing and processing recipes. These processes are as follows:

- (1) *Phye ma* or powder,
- (2) *Khu ba* or juice,
- (3) *Ril bu* or pill or tablet,
- (4) *Thañ* or decoction or tea,
- (5) *Lde gu* or paste or linctus,
- (6) *Thal sman* or calcined powders of metals etc.,
- (7) *Kha ṇḍa* or solid extracts,
- (8) *Sman mar* or medicated butter or medicated oil,
- (9) *Sman chañ* or medicated wine, and
- (10) *Rin chen* or special preparations containing gems or costly stones.

PROCEDURE FOR NAMING THE FORMULAE

The names of the drug formulations are usually based on the following six factors:

- I. Important ingredients;
- II. Authorship of the recipe;
- III. Therapeutic Property;
- IV. First ingredient of the formula;
- V. Quantity of drug; and
- VI. Part of the plant.

AIMS OF DIFFERENT PHARMACEUTICAL PROCESSES

Different pharmaceutical processes are developed in Tibetan medicine through centuries of experience for the following purposes:

- (1) To make the recipe easily administrable.
- (2) To make the recipe tasteful.
- (3) To make the recipe easily digestible and assimilable.
- (4) To make the recipe therapeutically more effective.
- (5) To make the recipe free from toxicity and more tolerable. and
- (6) To make the recipe preservable for a long time.

IMPORTANT PRECAUTIONS TAKEN

In some of the recipes some toxic ingredients like aconite and arsenic are included for therapeutic necessity. In raw form, these are toxic. But before adding such ingredients, these are detoxicated by special processes of purification. By these purification processes, the toxic drugs are not only made free from toxicity but they also become more effective therapeutically and work as tonics. For example: raw aconite

(*btsan dug*) is a cardiac depressant. But when processed and purified with cow's milk, the same aconite works as a cardio-tonic.

Some gum resins, such as *gu gul*, and some other drugs containing volatile oils, as *ru ta* are also described to undergo the process of purification by boiling them with milk, cow's urine, etc. Boiling of the drugs, however, definitely reduces the volatile oil content which is supposed to be therapeutically very active. The utility of such purificatory process should, therefore, be studied before proceeding with the standardization of Tibetan medicines.

USE OF MANTRAS

Lamas and Tibetan physicians use different types of religious mantras while collecting drugs, during the process of manufacturing and after the medicine is prepared. The physician has to make himself perfect (*siddha*) with these mantras. The spiritual vibration, thus generated, in his body is communicated to the recipe by reciting the mantras in the presence of the *smān lha* (Bhaiṣajya guru, the medicine incarnation of Lord Buddha) and *yi dam* (Tutelary deity). The effect of these mantras in inculcating therapeutic efficacy to the recipes need to be studied scientifically.

Tibetan medicine should not be viewed from the point of history of medicine alone. It is both history and medicine. No doubt, there is a history of thousands of years behind it. But it is even now a living medical system catering to the health needs of millions of people living in Tibet, Bhutan, India, etc. There are hundreds of trained practitioners of Tibetan medicine in these countries and people have implicit faith in the therapeutic efficacy of the drugs and therapies of this system. Like other medical systems, it has, of course, its limitations. Advanced civilization and modernization have not left Tibetan medicine untouched. Accidental human errors and intentional profit motives

coupled with the vicissitudes of time have created several problems for this system of medicine. Therefore, the Tibetan drug that is found in the market may not carry the same therapeutic effect as is claimed for it in the Tibetan classics. The Materia medica of Tibetan medicines provides a storehouse of therapeutically effective drugs and these gems are to be selected with due care for mitigating the miseries of the suffering humanity.

USE OF SUBSTANDARD DRUGS

A medicine becomes substandard and thus ineffective because of the following:

- (1) When all the ingredients of a recipe are not added.
- (2) When the costly but therapeutically effective ingredients are omitted for more profit.
- (3) When substitutes are added to a recipe in the place of genuine drugs.
- (4) When care is not taken to collect genuine drugs, and adulterants are added to the recipe.
- (5) When the prescribed procedures are not followed and labour as well as time saving devices are adopted for production and more profit.
- (6) When toxic ingredients are added to a recipe without proper processing or purification.

Such substandard medicines are produced and marketed some times out of ignorance and some other times with a profit motive.

NEED FOR STANDARDIZATION

In the past, traditional physicians of Tibet, even those receiving royal patronage and working in Royal hospitals for free treatment of common man were preparing medicines themselves or through their assistants under their

direct supervision. They were experts in identifying local and exotic herbs, minerals, gems, precious stones and animal products. The present day traditional physician has become a busy practitioner having very little time for manufacture of his own medicines. Further, manufacturing these medicines in small quantity becomes expensive which the patient can ill afford to pay. Therefore, the traditional physician either in private practice or in the service of government hospitals and dispensaries has to depend upon other manufacturers for their drug requirements. These manufacturers either out of ignorance or willfully with a profit motive, produce and sale substandard medicines. There is therefore, a need for standardization and quality control.

Problems of Standardization

In the present day situation, no body will deny the need for standardizing and quality control of recipes used in Tibetan traditional medicine. While doing so, one should keep in view the problems which are as follows:

(1) Difficulty in Identification of Drugs

In Tibetan medical literature like *Rgyud bñi*, *Sel goñ*, *Sel phreñ* and Jam pal rdo rje's Illustrated Materia Medica, three categories of drugs are described. Some of these works are based on Ayurvedic texts of India for which there are both internal as well as external evidences. Some of the Ayurvedic texts, the original Sanskrit versions of which are still used by Indian traditional physicians, are included in Tibetan Tanjur scriptures. These are (1) *Sbyor-ba brgya-pa* (San. *Yogaśataka*), (2) *Sman gyi miñ gi rnam grañs* (San. *Auśadha-nāma-paryāya*), (3) *Yan-lag brgyad pa'i sñiñ-po bsdus pa* (San. *Aṣṭāṅga-hṛdaya-saṃhitā*), (4) *Sman dpyad gces-pa grub-pa* (San. *Vaidya Siddhasāra*), etc. Thus the three categories of drugs are:

- (i) Those currently used by Indian physicians and described in Ayurvedic texts. Most of these drugs are botanically identified which may be accepted as authentic.
- (ii) Those which were used in Bon-po medicine and folk medicine of Tibet, Mongolia and China, and are included in the classical works of Tibetan medicines. Some of these are botanically identified and some others are yet to be studied.
- (iii) The third category of drugs are actually the official substitutes which are used in Tibetan medicine because of their non-availability or rarity in Tibet. These drugs are to be botanically identified and clinically evaluated so as to ascertain their acclaimed therapeutic efficacy.

(2) Improper collection

Tibetan traditional drugs are required to be collected according to some prescribed rules. For example, some fruits are to be collected in a particular season. If these rules are not observed then recipes prepared out of these drugs will not be effective.

(3) Improper storage

Some Tibetan drugs lose their potency when stored for a long time. Others like *thal sman* add to their potency when used after storing for a long time. Care should be taken to store these raw drugs properly.

(4) Improper method of preparation

Apart from including all the ingredients of the recipe, the prescribed methods of preparation including the purification of toxic ingredients should be carefully followed. There should not be any objection to the use of cutting, grinding, tablet making and strip-packing machines

in the manufacturing of Tibetan recipes. But excessive mechanization and use of labour-saving devices should be avoided. For example, if a recipe is prescribed to be triturated by adding the juice of a plant for 15 days, this process of trituration should not be finished in one day because of the use of end-runner-mills.

Calcination (*thal sman*) of metals, minerals, gems & costly stones should not be done by electric furnaces. The physician should be very careful in using machines. Otherwise, the recipe will lose its therapeutic efficacy.

(5) Use of Adulterants and Substitutes

Before using in recipe, each ingredient should be carefully examined to eliminate adulterants and substitutes. Even officially permitted substitutes should be used only after their clinical efficacy is ascertained.

(6) Substitutes of costly drugs

In some recipes costly drugs like gold, ruby, pearl, torquise and diamond are prescribed to be used. Because of their cost and nonavailability, some times their substitutes are added or these original drugs are added in less than the prescribed proportion. This affects the therapeutic efficacy of the recipe.

(7) Omission of ingredients

Some times, if a drug mentioned in the recipe is not readily available and the recipe is prepared by omitting the non-available ingredient. Each ingredient of a recipe has a specific purpose to serve. Therefore, such omissions should be avoided.

(8) Improper storage of finished products

Finished products should be stored in an appropriate container with proper labelling in a place free from moisture, dust and excessive heat.

METHODS OF STANDARDIZATION

It is necessary to, first of all lay down standards for Tibetan traditional drugs before their quality control to ensure efficacy, safety and purity of these could be enforced. It should be achieved in different stages as follows:

- (1) First of all, a Pharmacopoeia committee consisting of eminent Traditional practitioners, Botanists and Chemists should be constituted and through a questionnaire the opinion of all the traditional physicians of Tibet about the most effective drugs and formulations should be obtained. Tibetan literature and folk traditions have thousands of recipes. To start with, only a few selected drugs and recipes on the basis of this questionnaire should be taken up for standardization.
- (2) These recipes should be critically analysed with reference to the prescriptions in the standard literature of traditional medicine and the Formulary giving the following information should be prepared:
 - (a) Name of the recipe;
 - (b) Name of the text or reference book in which it is described;
 - (c) Ingredients used along with their parts, botanical or scientific names and unit quantity to be added to the recipe;
 - (d) Methods of preparation, general & specific;
 - (e) Indication or therapeutic usage;
 - (f) Mode of administration, in which form and whether to be used externally or internally;
 - (g) Dosage and frequency of use;

(h) *Sman Ita* or vehicles along with which, these are to be taken, and

(i) Precautions and dietetic instructions, if any.

- (3) At the third stage, standards in respect of these recipes and single drugs included in them should be worked out. These standards will involve pharmacognostic study, physical as well as chemical analysis and biological assay.
- (4) On the basis of these standards drug-testing and quality control measures should be evolved.

GOOD MANUFACTURING PRACTICES

Since all the above mentioned steps will take a long time to be accomplished, in order to ensure quality, safety and efficacy as a short term measure, the following Good-Manufacturing Practices in the manufacturing units should be ensured.

(1) Personnel

Apart from skilled and unskilled workers and managerial staff, each manufacturing unit should have an expert traditional physician in the staff to supervise the work.

(2) Premises

There should be adequate space for safe working and logical and orderly placement of equipments. It should be designed to prevent entry of animals, insects & flies. There should be sufficient lighting, heating and ventilation arrangements. There should be enough space for storage of raw material and finished products.

(3) Sanitation

The place should be hygienic, and unhygienic practices like eating & smoking should be avoided. There should be adequate toilet and hand-washing facilities.

(4) Raw drugs

All raw drugs should be properly collected, identified, stored and used before they lose therapeutic potency.

(5) Manufacturing

All drugs and recipes should be properly processed and the process should be well documented with batch numbers & dates.

(6) Finished products

Medicines, thus manufactured should be properly packed and labelled (including putting leaflets) indicating the ingredients, batch number, date of manufacture therapeutic indications, dosage, vehicles to be used and other precautions.

(7) Inspection

To ensure compliance with all these basic requirements, the factory should be properly and frequently self-inspected and inspected by the Drugs Control Authority of the Country.

All these measures have been suggested keeping in view the interests of patients, physicians and manufacturers.

**Key to Transliteration of
Tibetan Letters**

ཀ	ka	ཁ	ta	ཐ	za
ཁ	kha	ཁ	tha	ཀ	a'
ག	ga	ད	da	ཡ	ya
ག	gha	ད	dha	ར	ra
ང	ña	ན	na	ལ	la
ཅ	ca	པ	pa	ཤ	sa
ཆ	cha	ཕ	pha	ཐ	sa
ཇ	ja	བ	ba	ས	sa
ཉ	jha	བ	bha	ཏ	ha
ཉ	ña	མ	ma	ཨ	a
ཊ	ta	ཅ	tsa		
ཊ	tha	ཅ	tsha		
ཋ	da	ཇ	dza		
ཋ	dha	ཐ	va		
ཌ	na	ཐ	za		

Abbreviations for Parts/Products of Drugs

Name of the part/product		Abbreviation
Khaṇḍa	Solid extract	Ext.
Khrag	Blood	An.
'Khri sin	Creeper	Pl.
Gya kyegs	Extracts like lac	Exd.
No sman	Plant	Pl.
Du ba	Smoke	Sm.
Rdo	Stone	Mi.
Rnag rtsi	A type of exudate	Mi.
Phye	Flour etc.	Fr.
Brun	Extreta	Exc.
'Bras bu	Fruit having one seed	Fr.
'Bru	Fruit having many seeds	Fr.
Me tog	Flower	Fl.

Name of the part/product		Abbreviation
Rtswa	Grass	Pl.
Rtsa ba	Root	Rt.
Rtsi	Exudate of animals & stone	Exd.
Tshwa	Salt	Mi.
Chi ba	Exudate of plants	Exd.
Rwa	Horn	An.
Rin chen	Gems & jewels	Mi.
Rus pa	Bone	An.
Lo ma	Leaf	Lf.
Sa	Flesh	An.
Siñ	Stem	St.
Sun pa	Stem bark	St. Bk.
Sa	Minerals and metals including ores collected from earth	Mi.

Categories of Preparations

1. Decoction 84, 85, 124, 168, 187, 201
2. Powder 1, 2, 4, 7, 8, 10, 13, 14, 15, 16, 17, 21, 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 44, 45, 46, 47, 48, 49, 50, 53, 56, 60, 61, 63, 67, 68, 72, 73, 74, 75, 76, 77, 80, 83, 87, 88, 90, 91, 92, 93, 96, 98, 99, 106, 108, 109, 110, 111, 112, 115, 116, 118, 120, 121, 122, 123, 133, 134, 137, 139, 141, 142, 145, 146, 147, 148, 150, 151, 154, 155, 159, 160, 161, 163, 165, 166, 169, 171, 173, 174, 175, 176, 178, 180, 181, 185, 186, 188, 189, 198, 200, 202, 203, 204
3. Tablets, pills 3, 5, 6, 9, 11, 12, 19, 20, 23, 26, 27, 37, 38, 40, 41, 42, 18, 43, 51, 52, 55, 57, 58, 64, 65, 59, 66, 62, 70, 71, 73, 69, 78, 79, 81, 82, 86, 89, 94, 95, 97, 100, 101, 102, 103, 104, 105, 107, 113, 114, 117, 126, 127, 128, 129, 131, 135, 136, 137, 140,

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157, 158, 167, 162, 164, 167,
170, 172, 177, 179, 182, 183,
184, 191, 192, 193, 194, 195,
196, 197, 199, 204

4. Medicated butter 119

5. Solid extract 130, 132

1. Kun byed rgyal po

No.	Drug Name	Parts	Weight
1.	gañs thig	Mi.	6.5G
2.	sbal rgyab pho mo 'dres pa	Mi.	5G
3.	mdud rtse dkar smug	Mi.	5G
4.	coñ ži	Mi.	15G
5.	mtshal	Mi.	5G
6.	gser rdo	Mi.	5G
7.	dñul rdo	Mi.	5G
8.	rdo rgyus	Mi.	5G
9.	mthiñ rgyus	Mi.	5G
10.	khab len	Mi.	5G
11.	'brug rus	An.	5G
12.	a va	Pl.	7.5G
13.	ña phyis	An.	5G
14.	duñ	An.	5G
15.	gur gum	Fl.	5G
16.	mi mkhris	An.	5G
17.	dom mkhris	Exd.	5G
18.	a bhi ša	Pl.	10G
19.	cu gañ	Exd.	5G
20.	tsher sñon	Pl.	5G