

# The herbal power of Orchids



Alexander Friesen | Bruno Friesen



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We thank all the participants involved to make this book possible and especially my daughter and my lovely niece Uschi and her best friend Ivana for the outstanding and extraordinarily beautiful graphic design.

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# FOREWORD

The kingdom of plants is all around us and influences our daily life. They are part of our daily nutrition and what we most admire many of them are colourful and ornamental. However, how many of us are aware that the plants we meet daily have

a long and healthy life, lasting beauty and of knowing the secret of eternal youth a tonic against aging, suffering and diseases. Does the bravura creation of orchids represent this dreams, is it the panacea of all illness?

## Orchids are some of nature most gorgeous creation

medicinal value and are part of the wealth of natural herbal medicines. They have compounds in their tissues, ingredients that are able to heal, thrill or kill. Many modern-day drugs are plant based and synthesized in the laboratory; they would not exist without natural compounds discovered in plants in the first place.

Orchids are some of nature most splendid and magnificent creation, the princess and princesses of the plant kingdom. These species have in all aspects an exceptional reputation. They were rare and delicate, therefore hunted for centuries. They give the perceptions of innocence, charm, passion, erotic and happiness and stand as synonym for beauty, love, wisdom, longevity, wealth, health and youth. They represent all our feelings, everything for what people longing. Orchids are strange, like a locked jewellery box hiding treasures and secrets we are eager to know. Everybody dreams of

The authors Dr. Alexander und Bruno Friesen try to reveal the treasures and secrets of orchids in their book titled "The herbal power of Orchids". The book provides the currently available information on ethnomedicine, ethnobotany and traditional knowledge. It identifies its phytochemical and pharmacological important compounds and discusses the results of experimental, preclinical and clinical studies with extracts of orchid species. The authors unite their love for orchids, their object of interest and discussion for over 30 years. Alexander Friesen is a medical doctor and knows TCM (Traditional Chinese Medicine) and its herbal approach from his medical studies. TCM uses many orchids as ingredient in their herbal formulation. Dr. Alexander transfers the indication and results into the nomenclature and terminology of the western medicine in a way, uncomplicated to read and easy to understand. Bruno Friesen life is the science of chemistry. He introduces the reader into

the chemistry of plant toxins and the major alkaloids synthesized by the biochemistry of orchids, easy to read and to understand. The authors do not intent to write a scientific book for the scientist, but to meet the challenge of a reader interested in herbal orchids who would like to view this subject from different angles eager to discover the secrets of orchids and learn how difficult it is to unlock their treasures. We compiled the available up-to-date knowledge and the opinion of different authors in this field to present a comprehensive over all view of the herbal use of orchids.

The book starts with a historical review of the orchid and their medical use in the past. It introduces the herbal aspect in TCM and Ayurvedic medicine and discusses salep, one of the first orchid tonics used as herbal medicine, its orchid genera and species. Following chapter introduces the bioactive alkaloids in orchids and its chemistry as an easy reference for the discussion of alkaloids in orchids. TCM uses many herbal orchids in its traditional formulations of Herba Dendrobii, Herba Minima and Herba Recens. The book discusses the orchid genera and species used as well as other valuable herbal orchids. Modern pharmacological research discovered many more genera with interesting pharmacological active ingredients; some of them may be our medicines of tomorrow when other drugs, we depend on now, becoming less effective. Many plant toxins found in orchids showed neuroprotective, liver protective, antiviral, pain-

killing, antiaging, antidiabetes, anti-inflammatory, antimicrobial, antiallergic, immune stimulating, antiplatelet aggregation, antitumour activities and many show aphrodisiacal and fertility promoting activities. Some orchids even fight for space and kill surrounding weeds to make room for their future colonies. Are these our future herbicides? These very interesting herbicidal orchids form the last chapter of the book. Future research will reveal more treasures of the orchids, treasures, which could protect humanity from future diseases.

### Caution

**We advise our readers strongly not to use the information in this book to experiment and self-prescribe. Always consult a trained herbalist or medical doctor before taking any herbal or non-herbal medicine.**

# INTRODUCTION

Orchids are some of nature's most gorgeous creations. Unlike other flowers that have served humanity in many useful ways, the orchid seems to be a flower whose reputation lies entirely in its symbolism. Orchids are a symbol of love, beauty, passion, sexuality and they carry its rare, erotic and exotic mystery. A single orchid as a gift is often a reflection of a romantic intention or other form of feeling expressed to another. An orchid can bring abundance of happiness, magic, if received by the special one. The flower offers a pleasant experience to all senses and can bring pleasure to the heart of the recipient. Its scent trickles emotions and the colour of the flower add to it. Orchids present all colours, from the pure and innocent white to mysterious black. The potential of a black orchid with its magic attraction attracted orchid growers since more than hundred years. They have been searching and hoping for a truly black orchid as there is a fascination with black blooms a fact that is rather hard to explain. It appears to originate from fairytales and their deep colour inspires a feeling of mythical power. There are some dark orchids, dark enough to call them black by virtue of their very dark intense colour. *Paphiopedilum wardii* is very similar to a black orchid. This attractive, famous and ornamental orchid has light green leaves, mottled dark green with red purple spots underside. *Cymbidium canaliculatum* has a rich dark maroon, with a touch of white and dark purple on the labellum or *Trichoglottis brachiata*, native to Borneo, Philippine and

Sumatra has many velvety dark and fragrant flowers produced at the nodes along the stem. The lip of *Coelogyne pandurata* from Borneo is truly black. However, in essence, the black orchid is nothing than a myth.

It is a widespread belief that orchids represent beauty and erotic shown by how orchids attract male insects. The male insects cannot resist visiting the labellum and the orchid know how to toy with them. Fly-, bee- or spider orchids are one kind of grouping, because they can mimic the insects themselves. Types of members of these groups are species of the genus *Ophrys*. The lip of the tongue orchid is a specialized petal that presents and acts as a female dummy of the flying insect, a bee or a wasp. The resemblance is so close that the males visit the flower and actually try to copulate. With the movements, they acquire the pollen sacs of the orchid and transmit them to other blossoms. The colour of orchid flowers, especially the lip is also important for attraction. The male insects are more attracted to dark colours and contrasts. Light colours and a shiny surface are not effective attractants. Movements of the orchid flower with the wind enhance these effects. In addition, odour plays a strong role in attracting male insects. Some produce a fragrance that initiate search behaviour in the males and guide them to the stationary females. *Ophrys* flowers give off odours similar to, if not identical with those produced by females of their associated insects.





Fig. 1: Orphys “Bee Orchid” and orchid bee

Orchids have been since time a symbol of luxury and have been the hobby of emperors and kings. They are a special floral gift and were the most impressive bouquet at the weddings of the social, political and economic elites. Whatever the colour of the orchid, its purity conveys messages of love, wisdom and thoughtfulness. “Flower of Magnificence” refers to orchids, due to its beauty and its fragrance. Susan Orlean, the author of “The Orchid Thief” understands the mysterious allure of the orchid with her remark that they are psychologically intriguing and have a quality that goes well beyond the surface attraction. There is no question that here is something about orchids that

makes them very complex and interesting. She says that orchids seem to provoke strong feelings in people, even sparking an obsessive love affair with some people from the moment they encounter the first orchid. Orchids sometimes look more like creatures than plants, blooming for many months in pots and taking on shapes that resemble animals or people or body parts. Orchid are just weird, that is part of what makes them interesting and make them compelling in a different way than most other flowers.

Their graceful appearance draws immediate attention and their reputation as an exotic and unusual

# INTRODUCTION

flower evokes a sense of refinement and innocence. In China, orchids are one of the four noble flowers of Chinese tradition. They speak of the innocence of children and of refinement. A pink orchid is synonymous with affection and is the appropriate 14th wedding anniversary flower. The natural choice for Mother Day is the *Cattleya* variety, because it symbolizes mature charm.

Lan Hua is the Chinese name for orchid and is for the Chinese the symbol of the scholar, unassuming, enduring, innocent and ascetic. It is a favourite plant for expressing the rhapsodic strokes of the Chinese brush. Plant bamboo when you are angry, orchids when you are happy. More than 2500 years ago, Confucius lauded the beauty and scent of the flowers and compared the orchid flowers to the perfect human being and their perfume to the joys of friendship. He described the moral symbolism as the faith to the beauty and fragrance of orchids, which reflect nobleness of the intellect and spirit. He describes the character of orchids as "growing in the woods and they let out their fragrance even if there is no one around to appreciate it. Likewise, men of noble character will not let poverty deter their will to be guided by high principles and morals". He also remarked that "acquaintance with good men was like entering a room full of fragrant orchids". Probably this hymn of praise refers to *Cymbidium ensiflorum*, grown in Japan and China for more than 2000 years ago. *Cymbidium goeringii* could be the spe-

cies, used as a favourite motif in China ink painting. During the Yuan Dynasty, one of the darkest periods of Chinese history, Cheng Su-Hsiao lamented the rape of China by the Mongols in an exquisite painting of uprooted orchids, surely one of the most oblique expressions of political protest ever recorded. Later, when forced to paint in prison he angrily replied "you might have my head, but not my orchids". It is not by accident that some of the most famous and talented orchid artists were Zen Buddhists like Xuechuang Puming, who died in 1349 or Chengtiansi in China or Teshuu Tokusai who died 1366 and Gyokuen Bompou (1348-1420). Much appreciation received Xuechuang paintings, as every household in Suzhou possessed at least one of them. Orchids were as a symbol for female elegance, feelings of tremendous enjoyment and being one with nature. During the occupation of China by the Mongol in the Yuan-period, (1279-1368) orchids were the symbol for artists and intellectuals to add here their loyalty to the old system of the Song-Dynasty. With just a few strokes on plain background (as a sign of a stolen country by the invaders) orchids became a symbol for the political and spiritual resistance in the underground and the resistance to accept the barbarian conqueror. The Buddhist background of Xuechuang Puming of course accompanied his paintings. Often he places the leaves in pairs; the taller one symbolizes the spiritual ancestors of the Mahayana and the shorter once presenting the Hinayana-Buddhism.



Fig. 2: *Cymbidium goeringii*

# 01

## ORCHIDS, SYMBOLS OF APHRODISIAC AND FERTILITY

On the feminine side, the orchid were seen as a symbol of beauty, charm and refinement but on the masculine side because of the resemblance of some orchid roots to testicles they were considered to be an aphrodisiac and a fertility symbol. Among multiple meanings, the Chinese associated with the orchid the "Perfect Man". Throughout history, the orchids have been associated with erotica. Since time immemorial, man has been involved in a long and unyielding search for aphrodisiac. As

far back as 4000 BC and perhaps even earlier, the Babylonians took drugs to enhance their sexual prowess. The Egyptians recognized the benefits of sexual stimulants before 2000 BC, as the Old Testament speaks of plants like mandrake. Mandrake is the European equivalent of the Asiatic ginseng. The root of ginseng was a tonic for the aged at least 7000 years ago and prescribed as a stimulant and sometimes as an aphrodisiac. In fact, it was and still is a panacea of all illnesses. Mandrake has



Fig. 3: Mandrake and ginseng root from Hunan in China

forked root looking very much like the lower part of the human body and people believed to possess supernatural powers. Close associates of the plant were potency, magic and witchcraft during the Middle Ages and as with ginseng superstitions surrounded mandrake. Early Christians believed that God created the roots as an experiment before He created man in the Garden of Eden.

The Romans made a drink from hippo manes, a foamy matter that appears on the head of a newborn horse. This beverage together with the mandrake plant held the fancy of the European world for a long time and well known to alchemists, witches and physicians until well beyond the 17th century.

According to the ancient Greek philosopher and scientist Theophrastus, orchids possess powerful propensities for sexual excitation that a single application to the genitals will allow a man to “raise to the occasion twelve times in a row”. Satyrion is the archaic name for orchids known as an orchidaceous aphrodisiac. In Greek mythology, satyrion was a nymph who gave birth to a child, called Taras, fathered by the god Poseidon. Though orchids were named after the nymph, but it is more likely that their name come from the mythical and lustful satyr, a woodland creature depicted as having the pointed ears, legs and short horns of an oat and a fondness for unrestrained partying, a man affected with strong sexual desires. Orchids were his favourite food and supposedly responsible for



Fig. 4: Nymphs and Scityr (modified painting from W. Bouguerau)

the fun-loving style of these woodland deities.

The Greek believed that eating the plant root arise a satiric passion. In Greek mythology, Orchis was the son of a satyr and a nymph. At a festival of Bacchus, Orchis became intoxicated from wine, attacked a priestess where upon the entire gathering fell upon him and tore him limb from limb. After his death, he turned into a flower in the form of an orchid, which retained his nature. That is where the belief comes from that eating the plant root will develop satiric passion.

Ancient Greeks associated orchids with virility and strength. They believed that ingesting orchid roots influence the sex of their unborn child. If the father ate large ones, the child would be male and if the mother consumed small tubers, a girl would be born. It is hard to imagine that such a superstition could survive for such a long time with its integrity intact. During the Middle Ages, it was a common belief in Europe that orchid plants, or Satyria, grew in places where cattle, sheep or horses mated. Not

only Europeans considered orchids as aphrodisiac, people in countries such as Egypt, China and Africa believed in it as well.

In the 19th century, salep was very popular in England. Salep is a beverage based upon a starchy ingredient known as bassorin and extracted from the tubers of several species of East Asian orchids. The English liked it not only for its refreshing taste, but also for rejuvenating the body and, to a degree, the sexual organs as well. The Turks used *Orchis morio*, a species similar to *Orchis maculata*, as their talisman as they attributed special, supernatural powers to the flower. People would carry the plant on long voyages to stay away from all diseases. In modern time, there are some limited uses of the *Orchis* species to combat sexual ineptitudes. Applications for this purpose are more likely to occur



Fig. 5: *Epistephium lucidum*

in Asia than in Europe and North America. In general medicine orchid roots are employed as restoratives, as soothing substance which relieves irritation in the stomach and diseases caused by lack of vitamin C or ascorbic acid which is found in fruit and vegetables.

The American continent mentioned orchids first in the “*Codex Badianus*”, an Aztec plant book dating from 1532. The book describes the use of the *Vanilla pompona* flavouring for the traditional Aztec cocoa drink and use a special preparation as a health lotion. Aztecs draw strength from the famous vanilla orchid. In small quantities, it is a flavouring agent and in large amounts, the raw pods or the unadulterated extracts of vanilla can inspire aphrodisiac. There is an old lore that Xanat, the young daughter of the Mexican fertility goddess, loved a Totonac youth but was unable to marry him because of her divine nature. She transformed herself into a plant that would provide pleasure and happiness. She became the vanilla orchid so that she could forever belong to her human love and his people. In 1762, a German physician, Bazaar Zimmerman, published a study treating 342 impotent men successfully with vanilla decoction. The precise mechanism of the action is unknown. However, vanilla pods probably work in somewhat the same fashion as capsicum and Spanish fly, substances that stimulate the genitals through irritation. Individuals who take vanilla as a sexual stimulant usually start with no more than a single pod, increasing the dosage to two pods, if neces-





Fig. 6: *Orchis anatolica*

sary. It is also said, that vanilla, exhilarate the brain and on the endurance front it prevents sleep and increases muscle energy, as well as sexual drive; something one hopes those in distress will remember and find useful at this time. The Kakapos Indians living in Gorotire in southern Para State, Brazil, strongly believe their fertility and contraceptive traditional medicine are effective. They have a variety of plants used for contraceptives and extensive knowledge about how to prepare and administer the required doses. They use *Eupatorium squalidum* DC and *Epistephium lucidum* orally as a contraceptive. *Epistephium lucidum* is a terrestrial orchid that also grows in Venezuela and Guan. The name *Epistephium* derives from the Greek word *epistephe* meaning crowned, referring to the corona at the apex of the ovary. The terrestrial orchid grows on hills and mountains at altitudes up to ca 500 m (1600 ft) where the general vegetation consists of no flooded and flooded primary and secondary forest, plantations and abandoned fields. They are mostly large cane-like plants, growing to 5-6 m (16-20 ft) high with a terminal inflorescence, which each bears several flowers successively. The violet or lavender magenta coloured flowers have a pleasant smell. The short-lived but frequently blooming orchid appears to be the most popular contraceptive in Gorotire. In Queensland, the Aboriginal eat *Cymbidium madidum* as a contraceptive. Indeed research with mice suggests that seeds and fruit of the plants in their feed will reduce litter size. In addition, *Cymbidium madidum* has a

starchy pseudobulb, which is eatable, when treated, but Aboriginal application chewed them when suffering from diarrhoea.

Ayurvedic type preparations containing root or whole plant of *Vanda roxburghii* serve as aphrodisiac and given for impotence and barrenness. The Amboori village in Thiruvananthapuram district uses the roots of this plant against impotence in males. Studies on the effects of various parts of this plant on the male sexual behaviour and reproductive performance in mice showed that extracts of parts of the plant especially the flowers stimulates the sexual behaviour. The teachings of Confucius included the orchid symbol representing numerous descendants. Indeed the use of pseudobulbs of *Malaxis acuminata* was as a tonic to gain fertility, enhancing the formation of sperms. The Anatolian orchid, *Orchis anatolica* (see Fig. 6), is a rather delicate-looking species with a loose flower spike of pinkish flowers with large lips and long prominent spurs. It reaches 30 cm (1 foot) in height and grows in light shade in pinewoods. Investigation of the effects on reproductive function and fertility in animal studies suggest that it plays an important role in improving male reproductive potential and fertility. None of these items seem particularly exciting to modern way of living, but an orchid is still the preferred flower to send to an adorned woman. Who would bother to fool around brewing up aphrodisiac medications from its leaves and tubers when the bloom alone is apt to cause the desired happening?





Fig. 7: *Dactylorhiza maculata*

# ORCHIDS IN ETHNOBOTANY AND ETHNOMEDICINE



If you had been around some 80 to a hundred years ago, though, you might well have had the chance to drink an aromatic tea created from the leaves of an unusual orchid. The name is *Jumellea fragrans* also known as *Angraecum fragrans*. *Jumellea fragrans* is an epiphytic orchid of the islands Reunion, former called Bourbon and Mauritius and has up to 18 cm (ca 7 in) long, linear, three nerved leaves. The locals know the species as “Faham”, which use the leaves as tea. The leaves of *Jumellea fragrans* have a strong and delicious aroma and a sharp, aromatic taste. France and China were the first in the early decades of the 20th century to use this tea a substitute for ordinary tea and called Bourbon tea or Faham tea. It takes fifteen grains for one cup of cold water, brought to boil for 10 minutes, poured into a closed container and sweetened. A circular from the 1920s promoting Faham tea states that it is a substitute for tea on all occasions as it combines its tonic and digestive qualities free from the sleepless effect. It possesses an aroma of great delicacy depending on the quantity used and it gives forth a most agreeable perfume, recognizing indoor in a closed room long after. After drinking, it leaves a lasting fragrance in the mouth. Reserved for a future occasion and taken cold or made hot again is a further advantage of the tea. Milk or spirits in small quantities, especially rum, add delicacy and greater strength. Lastly, this valuable plant flavours custards and ices to which it communicates its delicate fragrance. The orchid

grows high on the slopes of the island, in the middle of virtually unreachable forests. The problems to collect a large supply of this plant meant that Faham tea, as a viable commercial item, was practically doomed to fail. Despite general agreement as to the taste of the tea, nobody used it anymore by mid-20th century. A story in a horticultural journal of 1924 stated that so-called Faham tea introduced into France replaced the regular Chinese tea. “Every work on botany of any importance similarly places it in the foremost rank of the beneficial productions of this favoured clime (Reunion)”, the author says. One of the most illustrious writers George Sand praises it in the midst of the fine description of the Island of Bourbon. The writer George Sand was infamous in her time for wearing men clothes and her numerous love affairs, many with famous artists like Musset and Chopin, the brilliant composer and pianist. The writer changed her name to George Sand from Amandine Lucia Aurore Dupin, Baronne Dudevant. The decade-long affair between Sand and Chopin reveals a great deal more than just the love of two people and the joys and challenged of real love. Nonetheless, their union inspired productive work periods for both of them. Both Chopin and Sand were able to work well. They spent a long time together and when Chopin’s lung disease progressed, coughing up blood, Sand found herself as caretaker. At that time, George Sand gave Faham tea to Chopin in an attempt to cure him. It has a sedating effect on the nervous system

and used as a medicinal plant. The leaves of *Jumellea fragrans* contain coumarin, which has a mild anti-inflammatory and antimicrobial effect.

Traditional knowledge, used for centuries by indigenous and local communities played a vital role in the area of medical treatment. The indigenous remedies originated directly or indirectly from the folklore rituals, magic and superstitions. They inherited their knowledge from their previous generations. Over the years, people have developed a great deal of traditional knowledge on the use of plants and plant products on curing various ailments. That kind of traditional medicine is a living medicine that actualizes new information about indications and applications influenced by new knowledge and experience and changes in evolution and social system. The natural medicinal plants provide a major part of the medicines for treatment of different diseases and until now, tribal people living in poor communities in remote areas depend on the plant-based medicines largely.



Fig. 8: *Jumellea fragrans*

Today, the local people of different regions throughout the world use many orchids for a variety of folk medicines and cures, which suggests a wealth of knowledge on herbal healthcare and orchid diversity. Whether there is any scientific support for such claims has yet to be determined. Today scientists are looking for possible cures in

traditional herbs and are painstakingly collecting, studying and analyzing ancient recipes in an effort to identify the active ingredients. Many other plants used in traditional medicine show that they contain various chemical compounds responsible for their curative properties. On the other hand, in their search for answers for ancient cures, scientists often do not find any scientific basis for their beneficial value, but this does not deter traditional medicine from dispersing them or the public from accepting them as a possible cure. Orchids have since time immemorial, a great repute as a medicine since antiquity in the traditional system of medicine.

Folk medicine uses many orchid genera such as *Acampe*, *Geodorum*, *Bletilla*, *Bulbophyllum*, *Calanthe*, *Coelogyne*, *Cymbidium*, *Cypripedium*, *Dactylorhiza*, *Dendrobium*, *Epipactis*, *Eria*, *Eulophia*, *Flickingeria*, *Habenaria*, *Liparis*, *Lusia*, *Malaxis*, *Pecteilis*, *Pholidota*, *Rhynchostylis*, *Vanda* and many others. They play their role in curing various diseases like arthritis, tumours, fever, malaria, snakebite, scorpion bite, depression, tuberculosis, indigestion etc. Many tribes like Kopsas, Kondareddies, Yandis, Valmikis, Nukadoras etc., used these orchids for maintaining good health. The Yi ethnic group in central Yunnan uses 116 plant species for medicinal purposes. The species represented 58 families. Orchidaceae, Liliaceae and Papilionaceae hold the third rank of the number of species with five species of each family. The

Yi ethnic group practices their traditional Yi medicine, which has its root in the Dali medicine of the Nanshao Kingdom for more than 3000 years. The assimilation of the best of local, Indian and Persian medicine lead to its own medicinal system, which is recorded in books such as *Yian Yao Jing*, *Shun* or in *Shuangbai medicinal book of Yi Nationality*, which is the earliest book of Yi medicine, older than 150 years. The famous Yi doctor, Huan-Zhang Qu, researched and developed the outstanding Yunnan Bai Medicine. The three most common conditions treated with Yi plants were trauma, gastrointestinal disorders and common cold. They use from the orchid family *Eria pannea* Lindley, *Pholidota articulata* Lindley, *Pholidota chinensis* Lindley and *Pleione yunnanensis* Rolfe. The use of the roots of *Pholidota chinensis* is to create a formula for external use. Yi healers prefer to use a single herb instead of multi species compounds. Decoction is the most common preparing method of traditional Yi medicine. They mostly use the whole plant for their decoction like *Eria pannea* together with a big red ginseng to treat chronic bronchitis, medicinal poisoning and wounds. Combining plants and alcohol is the second method frequently used to prepare plant medicine. It has a long history because Yi healer believed that alcohol extracts create more active components than water does, thus being more active in curing diseases. The extracted liquid serves as tonic or applied external. An example is the one-month-old alcohol extract of the whole plant of *Pholidota articulata*,





Fig. 9: *Acampe praemorsa*



Fig. 10: *Rhynchosyris retusa* (L.)

which treats headache, leucorrhoea or cough. Yi medicine is effective in treating pyretic toxicity, rheumatic diseases and others.

Leaves and roots of many orchids treat rheumatism and rheumatic pains as the roots of *Acampe papillosa* and *Acampe praemorsa*. The last is a robust plant with stout stem, about 30 cm (1 ft) long, covered by sheathing bases of leaves and yellow mildly sweet scented flowers. Nuka Doras of Vishakhapatnam district in India use pseudobulbs of *Pholidota imbricata* as a paste for external application for rheumatic swelling and Konda Reddis of Khammam district in India use the roots and leaves of *Vanda tessellata* against rheumatic pains applied external daily once for 5-6 days. *Vanda tessellata* is an orchid marked through scented large yellowish green flowers with bluish tinge. Kopsas of Khammam district use the crushed tubers of *Malaxis rheedii* external for rheumatism in cattle's. The recipe calls for a mix with jag gory in castor oil. *Malaxis rheedii* is a terrestrial tuberous herb, up to 30 cm (1 ft) high with yellow flowers. A decoction of the boiled orchid *Spathoglottis plicata*, common called "The Pleated Leaf", served against rheumatism and the hot fomentation pressed on to an infected part draw out pus, relieved pain and encouraged blood circulation. A fomentation is a compress made of hot water and flour paste or other substances. Today *Spathoglottis plicata* is the most frequently cultivated and popular *Spathoglottis* orchid, not only in collection but also in

gardens and parks in the tropical regions around the world. The colour of its flower varies; they can be white, pink or purple. The narrow lip broadens on the end and is yellow in the middle.



Fig. 11: *Grammatophyllum scriptum* and *Aerides multiflora*

Native Americans the Cherokee used *Platanthera leucostachy* called “Bog Orchid”, as a pain-relieving plant for rheumatism, sprains stiff and various joint and muscle aches. Either a sweat bath or decoction of the plant served external as a wash. *Vanda tessellata*, *Rhynchostylis retusa*, *Cymbidium aloifolium*, *Cymbidium canaliculatum*, *Satyrium nepalense*, *Paphiopedilum insigne*, *Platanthera ciliaris*, *Arpophyllum spicatum*, *Bletia catenulate*, *Cranichis speciosa* and *Epidendrum pastoris* served against infection and inflammation of the colon (dysentery). Konda Reddis of East Godāvari district in India prescribed the extract of the white roots of *Vanda tessellata* once a day for three days for dysentery. The fumes of burning dried stems spread out in homes, freed children from fever. Systematic ethnobotanical studies reported that an infusion of roots of *Platanthera ciliaris*, “Yellow Finger Orchid”, cures headache and has antidiarrheal activity if taken every hour for flux. The whole plant of *Paphiopedilum insigne* is very useful for stomach trouble such as amoebic dysentery. *Phragmipedium Rolfe* is a special tropical South

American genus of a dozen terrestrial species. A decoction of *Phragmipedium ecuadorensis* relieves stomach trouble. Charaka Samhita, the ancient Ayurvedic text mentions *Rhynchostylis retusa*, commonly known as “Foxtail Orchid”, as a medical cure, whereby the roots, called “Rasna”, treated rheumatism. Other indications were asthma, tuberculosis, nervous twitching, cramps, infantile epilepsy and dizziness, abnormal beating of the heart caused by stress or disease, kidney stone and menstrual disorders. Valmiki of East Godāvari district use the orchid as remedy for sore eyes and the fresh plant extract as an external application for inflammation of wounds and centipede bite. The juice of the leaves of *Rhynchostylis retusa* served for diarrhoea and dysentery. Studies confirm the antimicrobiological activities. The Indian book “Medicinal Plants of Meghalaya” lists this plant together with other orchids like *Dendrobium densiflorum*, *Dendrobium macraei*, *Dendrobium moschatum*, *Dendrobium nobile*, *Cymbidium aloifolium* and *Cymbidium rhynchostylis*.

There are 40 species of *Dichaea* Lindley in the West Indies and tropical Central and South American; all are epiphytic herbs. The Kofans valued a wash prepared from *Dichaea muricata* for treating eye infections, probably conjunctivitis, which is very common in the region. The tribal people of Eastern Himalaya extensively used *Vanda coerulea* for eye diseases. They believed that the juice of its flowers used as eye drop cures glaucoma, cataract and even blindness. Natives use *Encyclia citrina* on infected wounds and *Stanhopea hernandezii* for sunstroke. The Kopsas of East Godāvari district use the whole plant of *Acampe praemorsa* crushed with egg albumin and calcium paste to apply and tie with bandage for setting of fractures. Same purpose serves the leaves of *Vanda testacea* prepared as paste with other ingredients, applied and tied with bandage in cattle's. The Minpa tribes used even leaves to heal bone fractures and stems of *Cleisostoma williamsonii*. Applied seeds of *Dendrobium nobili* stopped bleeding of fresh cut wounds and *Phaius tancarvilleae* healed swelling of hands and legs. Native Americans used leaves of "Large Round Leaved Orchids", *Platanthera orbiculata*, as a poultice applied to sores, cuts and blisters on hand or feet and even scrofula. Scrofula is a form of tuberculosis in the lymph nodes in the neck, formerly caused by unpasteurized milk, but now rare.

India classify species of the genera *Aerides* like *Aerides multiflora*, *Aerides odorata*, *Aerides rosea*

and *Aerides crispum* as medicinal orchids. The use of juice of leaves of *Aerides odorata* was to heal boils in ears and nose and the grounded seeds speeded up the healing of wounds. Twenty species belong to this genus. The highly perfumed flowers from *Aerides odorata* form a dense hanging group variable in colour but mostly white with purple patches; sometimes more yellow or even purple. It grows widely throughout Southeast Asia. *Aerides crispum*, formerly known as *Aerides fieldingii* in Thailand, has long, pendent inflorescences of light-pink flowers, with some darker spotting on the petals. The plants powdered, boiled in neem oil and filtered served as ear tonic. Neem oil is the famous filtered extract of the seeds of *Melia azadirach* L. or "Persian Lilac". Two to three drops of oil into the ear once at night served as a cure for ear-ache. Interestingly the plant contains a phenanthropyran derivative, called aeridin, which is abundant in a few genera of Orchidaceae. Preclinical studies of an extract from the tubers of *Aerides multiflora* show antibacterial activity.

*Grammatophyllum scriptum* is a large giant, epiphyte from Indonesia. The orchid carries 5-8 broad leather-like, linear-ligulate, dull green leaves and many waxy, flowered, inflorescence arising on a mature pseudobulb that has many, waxy, colour variable, heavy textured flowers. The name refers to the pattern of flowers, which resemble Hebrew or Yiddish letters. The use of a decoction of the whole plant in Indonesia was to expel worms and



to treat dysentery. A pomade of the pseudobulbs made in Amboina, Indonesia cures sore. The hill tribes of northern Thailand use the squashed stems of *Grammatophyllum scriptum* on wounds of snake-bites and scorpions as antidote. They clean as well their face with the dew on the leaves after rainfall. An alcohol extract of the shredded stems clears gas in the large intestine and adds to longevity and general health.

*Oberonia* Lindley, an Old World genus represents 53 species. Twenty-four species grow in Kerala a narrow strip of coastland of southwestern India, fronting the Arabian Sea to the west. The Koyas are a tribal community of the northern portion of the Fodavari district, dwelling in the mountainous ranges. These Koya tribes believe in worshipping gods and goddesses. Koyas use indigenous medicines for curing several illness and diseases. They used the leaves of *Oberonia wightiana*, crushed with calcium, salt and turmeric paste and tied it with bandage for external tumours.

Country folk in some parts of the United States still rely on *Aerthusa bulbos* to relieve toothache and *Corallorrhiza odontorrhiza* to prevent or lower fever. The Indians of North America continue to use



Fig. 12: *Centaurea*

orchids medicinally, such as *Epipactis giganteum* for cases of insanity. Some Native Americans as the Cherokees, Iroquois, Menominee, Micmac, Penobscot and other tribes used *Cypripedium* to treat a variety of disorders. Preparations have been taken internally in the treatment of insomnia, anxiety, fever, headache, neuralgia, emotional tension, abnormal heart beat, tremors, irritable bowel syndrome, delirium, convulsions due to fever and to ease the pain of menstruation and childbirth. The Zulus in Africa employ an infusion of *Habenaria foliosa* and of *Ansellia humilis* as a substance, which causes vomiting. The Swagi use *Lissochilus krebsii* to treat diseases of children and species of *Eulophia* to prevent miscarriage, cure barrenness and other strange troubles.

Many flowers have appeared in myths from the ancient Greeks. The cornflower received her name

after the wise Centaur Chiron, mentor of Asclepius, Achilles and Apollo. During the Titan war, Chiron took Hercules side in his battle against the Centaurs. However, Hercules, by mistake, wounded Chiron's foot with an arrow full of "Hydra" poison. Chiron used the *Centaurea* plant in order to heal his wound. Since that story, many species of the genus *Centaurea* L. (Asteraceae) are traditionally in use for the treatment of various ailments. Investigations and studies showed that species of *Centaurea* have indeed antimicrobial activities and antiseptic qualities. Another example is peony. The flower myth of peony, the plant of healing, is related to Paeon, a student of Asclepius and the god of medicine and healing. Leto, the mother of Apollo and goddess of fertility once instructed him, to obtain a magical root growing on Mount Olympus that would soothe the pain of women in childbirth. Asclepius became jealous and threatened to kill his pupil. Zeus saved Paeon from the wrath of Asclepius by turning him into the peony flower. Since that, pregnant women used peony to soothe the pain in childbirth.

It is similar to the Greek myth about Orchid and Orchis. These resulted in a behaviour that Greek could control the sex of the new born with orchid roots.

There also exist many folktales, superstitions and magical stories about flowers. The tool is to believe that an object or an action will have influence on one's life. Folklore abounds with superstition is

most related to love. The name *Archillea* (commonly called "Yarrow") refers to the hero Achilles of Homer's Iliad who gave this plant to his soldiers to help stop the bleeding from their wounds during the Trojan War. Modern tests of this plant show that it contains chemicals that help indeed blood to clot. However, unfortunately it did not stop the bleeding when Achilles hurt his own heel and died from the wounds. The modern terms "Achilles tendon" and "Achilles heel" originate from this myth. It is also called "Devil's Playing" because people in the past believed that placing yarrow under their pillow would make them dream of matters of love or that your lover will appear in your dreams. Hang yarrow flowers over your bridal bed to insure love that lasts at least seven years. Carried in the hand it ward off fear. Carried in the pocket, yarrow reverses negativity and protects from witches. Added to the bath it protects from evil or harm. There are many other stories about orchids. On Moluccas islands, people attach the seeds of *Grammatophyllum scriptum* to a woman food to entangle her for life. The "Bog Candle Orchid", *Platanthera dilatata* grows along the roadsides, in front of houses and forest. It has a small white stalk of fragrant little flowers that looks like a little white candle. When people dig up the plant they chant "friend, I want wealth and much property". Women hoping to gain a mate have success in love and to make young men lucky, good looking and sweet used the plants in wash. People call them "Good Luck Charm Plants". In British Co-

lumbia, Canada, native women hopeful of enlarging their breast size used the chewed bulbs of *Calypso bulbosa* as a rub. People in Africa believed that an amulet of leaves of *Ansellia africana* impregnated with a paste made from the pseudobulbs works as a contraceptive, but, most conveniently, only in the short term for unmarried women. Two species, *Cyrtorchis arcuata* and *Eulophia cucullata* promote friendship in Australia. The preparation is to dry and pound the roots and serve them as infusion. *Cyrtorchis arcuata* served as well to treat diabetes or skin infections and *Eulophia cucullata* to prevent epilepsy. An infusion of the leaves and pseudobulbs of *Bulbophyllum maximum* protected against sorcery and *Tridactyle trispis* treated madness.

Beside love spells and the hope to give good luck in gambling, or to make one rich, orchids served as well as magic tools to protect one from sickness and the evil eye. For example, a decoction of smashed dried roots of "The Greater Purple Fringed Orchid", *Platanthera grandiflora* protect and fright away ghosts. In Sri Lanka, *Rhynchostylis retusa*, "Foxtail Orchid" casts an evil spell that will ravage the unsuspecting family once buried on their premises. For the day of the dead in Mexico, people place cows, pigs and horses made out of candied parts of *Laelia autumnalis* on the graves of loved ones. Because of that, this species has the common name "flor de todos santos" (flower of all saints) and "flor de los muertos" (flower of the

dead). The Chinese used orchids in spring festivals to drive away evil spirits. In Arunāchal Pradesh, India, orchids are a part of tribal life and culture. The cultivated orchids of Gompas like *Dendrobium hookerianum*, *Dendrobium nobile* and *Dendrobium gibsonii* symbolize the sanctity of the place and their use for holy worship. Similarly, *Vanda coerulea*, the blue Vanda, popularly known as "Rangpu" by Wanchu tribes of Tirap district is invariably associated with their festival dances for decoration, similar to that of *Rhynchostylis retusa*, "Kopuphul", used in Assam.

The spotted orchids in Europe were originally sacred to the ancient Germanic goddesses Freya and were later a plant of holy Mary, as people believed that the spots represent the blood of Christ.

The hill tribe people of northern Thailand keep the dried rhizomes of *Spathoglottis affinis* in their business environment to attract customers and increase sales; they also use the powder of dried rhizomes to spray it on people to attract their love. *Nervilia aragoana*, *Eulophia graminea*, *Euliphia macrobulbon* and *Ludisia discolor* protect the tribes from bad charisma.

The superstitions and myths of time past and more and more frequently, men of science took a close, impassioned, but analytical look at the plant world of orchids. Scientific studies on the medicinal properties of the orchids got a priority area of research.

# HERBAL ASPECT IN TRADITIONAL CHINESE MEDICINE (TCM)



To understand the properties, effects, activities and indications of herbal medicine of orchids it is necessary to introduce two kinds of oriental medicine, TCM and Ayurvedic medicine.

Two approaches are possible to understand the actions of traditional Chinese herbal medicines. One is the modern approach, which is to isolate, characterize and study the active ingredients chemically and pharmacologically. This approach presupposes that the herbs function in accordance with the same principles as biomedical drugs, based on the assumption that some modern pharmaceuticals are derivatives of natural substances. China, Germany, Japan, Korea and Russia carry out researches of this kind. It led to a number of advances in the pharmacology and applications of Chinese medicine.

The second approach is the traditional way. It is different from that in the west. TCM emphasize on how to identify plants for medicinal purpose. Each herbal medicine prescription is a summary of many herbs tailored to the individual patient. The practitioner usually designs a remedy using one or two main ingredients that target the illness. Then the practitioner adds many other ingredients to adjust the formula to the patients Yin and Yang conditions. Sometimes it is necessary to add additional ingredients to cancel out toxicity or side effects of the main ingredients. Some herbs require the use of other ingredients as catalyst or else the brew is ineffective. The steps require great experience and knowledge. Unlike western medi-

cations, whereas the focus of medical science is upon the pathologic entity, TCM draws upon a nature centred cosmology that emphasizes the relationship between the seed and the soil, the root that permits a disease to occur. The balance and interaction of all the ingredients are more important than the effect of individual ingredients. A key to success in TCM is the treatment of each patient as an individual.

Chinese people using herbs for centuries. The first herbalist in Chinese tradition is Shennong, a mythical personage, who tasted hundreds of herbs to test their medical value and imparted his knowledge of medicinal and poisonous plants to farmers. A legend says that Shennong had a transparent body and thus could see the effects of different plants and herbs on him. Tea, which acts as an antidote against the poisonous effects of some seventy herbs, is also his discovery. This discovery was in 2737 BC, when Shennong first tasted tea from tealeaves on burning tea twigs, when one tealeaf carried up by the hot air landed in his cauldron of boiling water. Shennong is the father of TCM. His work is the earliest Chinese pharmacopoeia. It includes 365 medicines derived from minerals, plants and animals.

The first category, called "superior medicine", includes herbs effective for multiple diseases and is mostly responsible for maintaining and restoring the body balance. They have almost no side effects. The second category comprises tonics and

boosters, taken only for a short time. The third category is only for the treatment of specific ailments and usually taken in small doses.

Lingzhi ranked number one of the superior medicines and was therefore the most exalted medicine in ancient times. The word lingzhi, in Chinese, means "herb of spiritual potency". Many descriptions call it "the mushroom of immortality" and refer to *Ganoderma lucidum*.

*Ganoderma lucidum* served as herbal medicine for more than 4000 years, making it one of the oldest mushrooms used in medicine.

Yin-Yang and the five elements (wood, fire, earth, metal and water) concept is the basic for the prescription of herbs. The harmony of nature depends on the relative balance of Yin and Yang. According to ancient Chinese philosophy, all natural phenomena result from the interplay between these two opposing cosmic forces. This applies to human health as well. Illness results when the equilibrium is disturbed. Yin and Yang are mutually dependent forces transmuted into their opposites when they reach critical levels of excess. Yin represents the negative and passive forces. It is female in nature and symbolized by water. Yang is the positive and active force, symbolized by fire and it is male in nature. The Yin-producing foods and herbs are moistening, nourishing and alkaline. They can be sedating or they can slow metabolism. Yang herbs, on the other hand have an active nature, in that they increase metabolism and acid-

ity. Yin tonics are nourishing, they moisten the lungs, stomach, liver or kidneys. Moistening means they can increase blood or fluid retention in those organs. Yin tonics moisten dryness, soften phlegm and alleviate thirst, dry cough, fever and night sweats. They treat dehydration diseases such as diabetes, increase strength, and calm the mind. Yang tonic traditionally reduce timidity, fear of cold weather, cold hands and feet, sore lower back and weak legs, sexual impotence, chronic watery diarrhoea, incontinence and fatigue-related asthma. Yang tonics provide the fire that drives the endocrine system.

According to the Chinese hypothesis, the body possesses a definite energy quotient at birth. While this energy dissipates through the change of daily living, it simultaneously replenishes itself by energy obtained from food and air. Energy imbalance, either an excess or an insufficiency, is the root of all illness; total absence of energy is death. Energy circulates throughout the body in well-defined cycles, moving in a prescribed sequence from organ to organ via the meridians. It flows partly at the periphery and partly in the interior of the body. Energy within the body is a dynamic force in constant movement. This is a leading principle in TCM, an important hypothesis within the framework of which the empirical theory of acupuncture was developed. The Chinese word Qi stands for energy flow. Traditional Chinese doctors believe that Qi is an invisible energy,

a force that keep the heart pumping, the lungs breathing and the kidneys filtering the blood etc. Without adequate Qi circulation through the body, internal organs stop functioning. Qi, fuels all body and mind processes. Food and oxygen fuel Qi, illness, toxins and stress reduces it. Qi is not measureable. Westerners tend to be sceptical about Qi but each of us felt it in one or another occasion. Same as when you get angry and you feel like shouting at somebody, this is stuck Qi. Illnesses will develop if Qi stagnations are not resolved.

The basis of acupuncture is that Qi circulate through a network of channels, just as streams and rivers flow under and across the surface of the earth. This lattice of channels forms a web of Qi that unites all parts of the organism. Within the Chinese traditional model, acupuncture works by regulating the movement of Qi. By restoring healthy circulation of Qi and blood, stagnation resolves. Optimizing the function of the five organ networks reduces the vulnerability to diseases. In modern language, acupuncture modulates fundamental homodynamic mechanisms that govern the growth factors of potent regulators of blood cell proliferation and development in the bone marrow, the development of immunity toward an antigen, temperature and pressure, respiration metabolism, hormonal secretion, muscle diseases and daily rhythm. Microcirculation in the capillary beds that surround internal organs is encour-

aged, therefore supporting processes of healthy nutrition and detoxification. Acupuncture also stimulates the central nervous system, activating mechanisms of repair and regeneration. In traditional language, acupuncture harmonizes Yin-Yang and the organ networks responsible for regulating growth, proliferation and dynamic harmony. An herbal prescription reduces the imbalance between Yin and Yang in the body. Since each herb has its own Yin-Yang nature, prescriptions need outmost care. Hence, Chinese physicians must be able to determine the nature of a patient's energy imbalance and try to restore balance with appropriate prescriptions and dietary advice. Chinese physicians used several different methods to classify traditional Chinese herbs namely, the nature or temperatures, the tastes and the meridians.

During the neo-Confucian Song-Jin-Yuan era (10th to 12th centuries), the theoretical framework from acupuncture theory was formally applied to herbal categorization. In particular, alignment with the five elements (fire, earth, metal, water, wood), the 12 channels (meridians) theory was used after this period. The ancients thought that all sights, sounds, smells, directions of wind currents and everything else were expressions of Qi. In medical term, anything that affects the functioning of internal organs can be observed through the five element correspondences, which relates the five elements to factors which are observable from the outside to know what is going on inside.