

ARTICLE FOR COSMETICS AND TOILETRIES

COSMETICS AND TOILETRIES FROM ETHNOBOTANY

PART ONE - AFRICAN FRAGRANCED PLANTS

Anthony C. Dweck BSc CChem MRSC FLS

Research Director, Peter Black Medicare

Aintree Avenue, Trowbridge, UK BA14 0XB

INTRODUCTION

It has been said that the Great Architect of the Universe provided a plant for every need on every continent, and it is remarkable that this statement appears to be true. Suppose that we were to put this theory to the challenge and were to search for natural sources of soap for washing. In Europe we have Soapwort or *Saponaria officinalis*, in Southern states of America there is the Yucca or *Yucca glauca*, in India there is the Soap Nut or *Sapindus indica*, in Africa there is Endod or *Phytolacca dodecandra*, and in South America there is Soap Bark or *Quillaja saponaria*. This is far from a definitive list, but it serves to illustrate that in every culture that there is a plant to satisfy the needs of cleaning clothes, washing hair and personal hygiene.

It is interesting to notice that these plants are totally different to each other ranging from soft fleshy plants to succulents, and from tree barks to berries. There is no way in which one culture could have learnt from another, and so one must suppose that each culture discovered the benefits of each indigenous plant by trial and error.

This series of articles will look at the role of ethnobotany and examine the way in which plants have been used (and in many cases are still being used) by different countries around the world for the care and perfuming of hair and skin.

EGYPT THE CRADLE OF CIVILISATION

In many illustrations and carvings you will notice the appearance of strange cones on the heads of the people portrayed. These were highly perfumed unguents of low melting point and as the wearer became warm, so the cone would slowly melt and the fragranced oils would run over them.

The art of distillation was not known to the early Egyptians and so the process of making these cones was extremely complex in order to preserve the more delicate fragrance notes.

Recipes were so important that they were inscribed in stone on the walls of the temples. One such recipe, or more accurately process, was found on the tomb of a Theban tomb of an unknown unguent maker, who predated Tutankhamen by some 100 years. It was for the manufacture of the very same perfumed cones that have just been mentioned, which demonstrate a large number of perfumery and herbal preparation techniques

First a man would hammer and splinter chips out of a fragrant piece of wood to make wood chips. These perfumed chips were then macerated in wine, and after a few days the liqueur would be strained off. They had effectively made a hydroalcoholic infusion.

To this they would add fat and other fragrant herbs and then form a decoction of the mixture by slow heating. These fragrant herbs obviously yielded their virtues more easily to the oily fat than to the hydroalcoholic wine.

The mixture was then allowed to cool, so that the fat set and could be skimmed off.

Herbs and spices were then ground and mixed with this fat, which was fashioned into cakes and allowed to stand. Now it can only be assumed that the herbs they used had volatile oils and esters which would have been too sensitive to use a heating process without degrading.

This last step, of allowing plant material to infuse fragrance into fatty materials is known as the technique of enflourage and the final product would today be called a pomade.

Finally, the wax was refined by pouring boiling water over the cakes and the fragrant wax skimmed off (leaving all the spice and herb detritus behind), and fashioned into cones ready for use.

It is quite amazing that they were both familiar with, and proficient in, the techniques of infusion, decoction and enflourage.

But to find out just how messy this method of perfumery was, we need to look at Psalms Chapter 133 verse 2, where we read "it is like the precious ointment upon the head, that ran down upon the beard, even Aaron's beard; that went down to skirts of his garments.

But did the ancient Pharaohs have an understanding of aromatherapy, or were they using the fragrances purely for the pleasure of their odour? It would be nice to think that they fully understood the psychological implications of the fragrances that they were using.

In Psalms Chapter 45 verse 8 we can perhaps find another clue: "All thy garments smell of myrrh and aloes, and cassia out of the ivory palaces, whereby they have made thee glad."

We certainly know that the ancient Egyptians used opium poppy seeds (*Papaver somniferum*) for culinary use, but that they were totally unaware of the narcotic properties of its exudate. It now seems that they might have had access to Hemp (*Cannabis sativum*) and also to tobacco (*Nicotiana tabacum*) following some interesting forensic studies performed recently.

However, they did have a number of hypnotic incenses, which have been described in the detailed writings of Plutarch and Herodotus, and these were much used in religious ceremonies to create a 'dreamy state of happiness', without being narcotic.

The most legendary of these was 'kyphi', which can be traced at least as far back as the 16th century BC. It was used in fumigation as well as being taken internally, and it served the multiple purpose of aiding communication with the gods, uplifting the spirit, and curing ailments. This incense was also highly regarded as a medicine for treating lung disease, asthma and liver disorders.

The recipe for this preparation according to Manniche is as follows:

-oOo-

1. Take 270g of *Acorus calamus* (Sweet Flag); *Andropogon schoenanthus* (aromatic rush); Pistachio resin (*Pistacia lentiscus* or mastic); cassia (*Cinnamomum cassia*); cinnamon (*Cinnamomum verum*); mint(?); Aspalathos (?). Grind and sieve. Only the powder is to be used, take 2/5ths of the total.

2. Take 270g each of juniper berries (*Juniperus communis*); an unidentified plant; pkr plant; *Cyperus longus*; total 1080g. Grind. Add to this 2250g wine. Leave until the next morning. Half the wine will be absorbed by the herbs. The rest to be discarded.

3. Take 1800g raisins (*Vitis vinifera*) and 2250g oasis wine. Grind together well. Remove the rind and pips of the raisins (weighing 1350g). place the rest (weighing 2700g) in a pot with the herbs and leave for five days.

4. Mix 1200g frankincense (*Boswellia thurifera*) and 3000g honey in a vessel. Boil gently until thickened and reduced by 1/5th, the total weight being 3360g. Mix the other ingredients and leave for 5 days

5. Add to this 1143g finely ground myrrh (*Commiphora molmol*) and you will have 10,164g kyphi.

-oOo-

Plutarch says of Kyphi:-

"Without drunkenness it relaxes and loosens the chain-like sorrows and tensions of daily cares. It polishes and purifies like a mirror the faculty which is imagination and receptive to dreams, like the notes of the lyre which the Pythagoreans used before sleep, to charm and heal the emotive and irrational or the soul. For odors often recall the power of perception when it is failing, while often they obscure and calm it since the exhalations penetrate the body by reason of their smooth softness."

If one studies Exodus Chapter 30 verses 23 to 25, one can compare this formula to kyphi, and one sees a number of common ingredients, such a myrrh, sweet cinnamon, sweet calamus and cassia, this recipe was to anoint the altar and the ark.

There is also the recipe for a perfume in verses 34 and 35:- "Take unto thee sweet spices, stacte, and onycha and galbanum (*Ferula galbaniflua*); these sweet spices with pure frankincense: of each shall there be a like weight. And thou shalt make it a perfume, a confection after the art of the apothecary, tempered together, pure and holy."

In the first book of Chronicles Chapter 9 verses 28 to 31 one can find a description of perfume making.

"And certain of them had the charge of ministering vessels, that they should bring them in and out by tale. Some of them also were appointed to oversee the vessels, and all the instruments of the sanctuary, and the fine flour, and the wine, and the oil, and the frankincense, and the spices. And some of the sons of the priests made the ointment of the spices. And Mattithiah, one of the Levites, who was the firstborn of Shallum the Korahite, had the set office over the things that were made in the pans."

This reference shows us how precious and valuable these perfume blends were, since only the eldest son would be handed down the recipe for this incense.

AFRICA

Across Africa there are thousands of plants used for their value in perfumery, and which may also have additional benefits. The following plants give an insight into the abundance of exciting potential benefits that might be used.

MIGNONETTE

Reseda odorata

Mignonette (so named by the French) or *Reseda odorata* was grown for its glorious scent, and again it was the Egyptians who cherished this plant for its perfume and used it in the wreaths that were placed with their dead.

BUCHU

Agathosma betulina

Some plants not only have a fragrance value, but also have exceptional value on the skin, such a plant would be Buchu or *Agathosma betulina*. The Khoikhoi tribe dried and powdered the leaves, which they then used as a dusting powder for treating skin wounds. A decoction formed in vinegar was used for swellings and particularly for those wounds that were slow healing. As a poultice, the leaves warmed in water can provide a soothing poultice or embrocation for painful joints or arthritis. Other species of this family (Rutaceae) provide exotic and overpowering scent to pot-pourri, indeed, so useful is this scent that it is used by the local fishermen to remove the smell of fish from their hands and to repel mosquitoes and midges.

In Namibia, the dried leaves are traditionally mixed with oil to provide a fragrance which has a rue/blackcurrant like aroma. It is also used as an antiseptic.

KHAKIBOS

Tagetes minuta

Some plants have an overpowering and distasteful smell, such a plant is khakibos or *Tagetes minuta*. The Tswana place branches of midsummer khakibos amongst their clothes to repel moths and insects, as well as to repel fleas. The oil is extracted for perfumery.

PETITGRAIN

Citrus bigaradia

Petitgrain is distilled from the leaves of the Bitter orange tree or *Citrus bigaradia* (the flowers are used to produce neroli). It is used to perfume skin creams and can be used in the same way as neroli for nervous conditions as a relaxing aromatherapy oil. It can also be used for acne and oedema.

LEMON GRASS

Cymbopogon citratus

The lemon grass or *Cymbopogon citratus* hardly needs any introduction, since it is one of the oldest and most known fragrance ingredients used for perfuming pomades used after bathing by the Greeks, Romans and Egyptians. Mats made from the plant are hung to waft a gentle fragrance throughout the living area.

In Africa, a refreshing tea is made from the plant, which is not only refreshing but also has benefit to soothe fevers and help relieve migraine. Externally, the tea may be used as a skin tonic and antiseptic. The oil has been shown to have appreciable activity against a number of spoilage organisms, as well as insect repellent qualities.

SANDALWOOD

Santalum album

Sandalwood or *Santalum album* is used by native African women as a fragrant emollient after taking a bath. The sandalwood is scraped with a knife into coconut or palm oil and allowed to macerate until the oil takes on a red tint. This oil is known by a number of names according to the dialect, such as gula, ngula, nkula or ukula. The oil is used to keep the skin soft, moist and protected. It also is used to stop the skin looking 'grey'.

Ground sandalwood mixed with milk is used as a cooling application to erysipelas, intensely pruritic conditions and heat rash accompanied by small blisters in the sweat follicles.

PAGODA FLOWER

Clerodendron spp.

There are a large number of plants of the Verbenaceae family, of which one fairly prolific species is *Clerodendron*. The leaves of *Clerodendrons* are applied to scrofulous skin diseases, pounded with coarse lime they can be applied to discoloured skin. Fomentations, embrocations and liniments are made for rheumatic conditions.

Clerodendron glabrum known as White Cat's Whiskers or Tinderwood has delightful aromatic flowers that can be used as pot-pourri, while the leaves when crushed emit a strong odour with insect repellent qualities that has been used by indigenous populations for generations as a wash or lotion to prevent insect infestation of the skin.

So soothing is the leaf considered by some tribes, that it is pounded and put under the neck or armpit of a fretful child. Many tribes, including the Zulus, use it as a snake bite remedy.

Other species are used for oedema, while some are used for indolent and slow healing wounds.

FENUGREEK

Trigonella foenum-graeceum

In the time of Antiochus Epiphanes (King of Syria) in Daphne, all those entering the gymnasium to see the games were anointed with perfumes from great golden dishes that contained fenugreek, spikenard, saffron, amaracus, lilies and cinnamon.

Fenugreek or *Trigonella foenum-graeceum* is a fragrant herb used mostly today for its culinary fragrance. However, the plant has exceptional benefit on the skin, where the seeds are used for their mucilage and emollient properties.

Traditional use is on severe skin inflammations, such as those experienced in boils and carbuncles, in other parts of Africa, the plant is used externally for gouty pains, neuralgia, sciatica, swollen glands, wounds, fistulas, tumours sores and skin irritations. It is also used on the oral mucosa such as chapped lips and mouth ulcers.

Fenugreek seeds were found in the tomb of Tutankhamen, and reference to the herb is in many ancient texts and papyri, one text concludes...."when the body has been rubbed with it, the skin is left beautiful without any blemishes. It is a million times efficient"

The plant is respected as a promoter of lactation, as well as being a source of diosgenin - the precursor to commercial steroid synthesis.

MARULA

Sclerocarya birrea subsp. *Coffra*

The botanical name is *Sclerocarya birrea* subsp. *coffra* and the tree is a member of the family Anacardiaceae.

It has medicinal properties against boils, malaria, diarrhoea, etc. which are attributed to infusions of the bark, leaves or sap of the marula tree. It is claimed that blood circulation is aided by a steam bath of marula bark extracts mixed with extracts of other plants and roots. Zulu women boil the pulp from the seed into a mass with water until an oily residue emerges. This precious substance is used as a beauty treatment for cracked skin on the hands, feet and lips. Claims are also made that the fruit may be used as an insecticide as well as a germicide. In Ghana the bark decoction is used for skin eruptions, while in Tanzania the leaves are used in decoction for boils and abscesses.

The marula is one of the most commonly utilised wild fruit of southern Africa. Archeological evidence indicates that the fruit of the marula tree was known and consumed by man in Africa 9-10,000 years B.C. (Friede and Paenaar, 1974).

It is used in many ways by the Zulus and consequently used in magic and marriage ceremonies. The groom and the bride use a decoction of the bark to bathe in and wash their faces in order to purify their bodies. The red bark is used to cure diarrhoea and to give the body power. It is rich in volatile oils that tonify the heart.

The outer skin of the fruit is pungent smelling and the fruit has been described as tasting like a cross between an apple, a litchi and a guava! Its smell is so strong that one or two fruits will scent a room for days.

LEMON VERBENA

Aloysia triphylla

Lippia citriodora

Lemon verbena is good for the complexion and helps to keep the skin clear of infection. The infusion makes a pleasant mouthwash and is good for bad breath. For tired eyes a compress using pieces of lint dipped in lukewarm infusion is refreshing and can help to reduce puffiness. It is also used to fragrance clothes, and keep rooms sweet smelling. An infusion of the leaves is used as an hair rinse. It can be dried and put in a bowl or with other pot pourri ingredients for room fragancing.

The essential oil is said to be acaricidal and bactericidal. An alcoholic leaf extract has been reported to have antibiotic activity in vitro against *Escherichia coli*, *Mycobacterium tuberculosis* and *Staphylococcus aureus*. A 2% emulsion of the oil has been reported to kill mites and aphids.

GERANIUM

Pelargonium odorantissimum

Pelargonium graveolens

On the skin it is cleansing, good for dermatitis, dry eczema, inflamed, oily, sluggish skin. It was used by the ancients as a remedy for wounds, ulcers and tumours. It makes a very refreshing and relaxing bath oil.

It is a mild analgesic and sedative, and may be used for neuralgia, and when there is pain which is of more nervous rather than physical origin. It is an analgesic, cicatrisant and antiseptic so is an excellent remedy for burns, and is renowned for its efficacy on wounds and all types of ulcers. In wounds or other inflammatory conditions it will reduce inflammation.

It is both sedative and uplifting and is one of the essences successfully employed in the treatment of anxiety states. It is an insecticide, due to its terpene content, and is very good as a mosquito repellent.

It is a useful essence for all types of skin conditions including dry eczema, burns, shingles, ringworm, and pediculosis (lice). Geranium essence is good for skin problems such as frostbite, dermatitis and inflammation. It helps the cicatrisation of wounds and treats haemorrhoids and bad circulation.

VANILLA PLANT

Vanilla planifolia

Vanilla fragrans

Vanilla tahitensis

Vanilla pompona

It is a member of the Orchid family. The familiar fragrance only develops in the vanilla-pod when this has been allowed to ferment for a certain length of time; the pod has no odour at all when fresh.

It is an aromatic stimulant, and is used, in infusion, in hysteria, rheumatism, and low forms of fever. It is also called an aphrodisiac, powerfully exciting the generative system. Vanilla is said to "exhilarate the brain, prevent sleep, increase muscular energy, and stimulate the sexual propensities".

Vanilla has been used in Europe for the purpose of aphrodisiac since Elizabethan times. The Comtesse du Barry, the mistress of Louis XV of France, is said to have made extensive use of vanilla beans to keep her many lovers 'interested'.

The juice from the crushed leaves is rubbed into the hair to produce a healthy, thick growth.

The anti-caries effects of vanilla have not been well documented, but are believed to be related to the catechin content of the plant.

TAMANU

Calophyllum inophyllum

Primitive tribes utilise the leaves frequently for different kinds of skin problems. The leaves are heated over a fire until soft and then applied to skin ulcers, boils, cuts, sores, and pimples. In other tribes the boiled leaves and a skin rash is washed periodically with the solution.

The leaves are used for treating skin inflammations, leg ulcers, wounds. The value the oil of the fruit is used as a liniment for joint pains, arthritis and bruises. The oil is applied to suppurating wounds including coral sores and is commonly used for rubbing on the limbs of children who are slow in learning to walk. Some mothers rub the fruit oil of *Calophyllum inophyllum* onto their babies to prevent nappy rash. The oil also is occasionally used in the place of a chap stick for chapped, parched lips.

Tamanu oil can be applied on skins as well as mucous membrane lesions. It heals small wounds such as cracks and chaps, but is also efficient on more serious cutaneous problems: atonic wounds, physical and chemical burns, radiodermatitis, anal fissures or post-surgical wounds. Tamanu oil activity was studied in numerous clinical cases.

CARDAMOM

Elettaria cardamomum

The herb is used for bad breath (halitosis).

It is used for its aphrodisiac effect, and it also has an uplifting effect, helping to clear the mind of noise and confusion. Makes an excellent bath oil, light, refreshing and stimulating.

When the seeds are chewed they help digestion and stimulate the appetite.

HYACINTH

Hyacinthoides non-scripta

The bulb is a diuretic and a styptic, but used fresh is poisonous. Its main indication for use has been leucorrhoea, a profuse vaginal discharge. However, the effective dose of the dried powdered bulb is only 3 grains (195mg) and not to be exceeded and, therefore, this remedy is not recommended for domestic use.

The juice in every part of the plant has been used as a substitute for starch, and in the days when stiff ruffs were worn was much in request. From its gummy character it was also employed as bookbinders' gum.

JUNIPER

Juniperus communis

Juniper when applied externally is useful in cases of rheumatism, sciatica and dermatitis and has been reported as having therapeutic effects in the treatment of neurasthenic neurosis when used as a bath. It is also reported as having antimicrobial properties. The bark was distilled to treat skin problems and hair loss. On the skin it is of particular benefit for acne, oily, eczema, dermatitis, seborrhea of the scalp and a tonic.

Sawdust and wood pitch of juniper have also been found on pharaonic mummies. There is evidence for juniper having been used for dyeing in ancient times.

An infusion of the berries is used as a diuretic and as a disinfectant of the urinary tracts (cystitis). Used externally, a tincture of the branches is used as a rub for some skin conditions and to combat alopecia.

Their internal use should be avoided during pregnancy, and they should not be given to any patient with renal disease. Highly repellent effects on mosquitoes were observed for essential oil of juniper, when some of the oil was topically applied in a 10% cream it protected the skin for up to three hours.

NAIVIE

Annona senegalensis Pers. subsp. *senegalensis*

Vernacular name in West Africa is "Naivié".

The young leafy twigs, and root is used as a tisanne in chesty complaints and pains. With roots is used for diarrhoea and dysentery. The ground root is applied as paste and the leaf decoction is taken for elephantitis (enlargement of limbs). The pulverised, dried leaf and root is used for Guinea worm sores. It is used as an insecticide against lice. Used as a drink or sitz bath for leprosy. The bark infusion is used as a mouthwash for toothache. The root applied as a paste to whitlows. It is a source of potash for soap making from the wood ash. The aromatic seeds are used for their fragrance.

BASIL

Ocimum basilicum

The oil clears the head and is uplifting, it is of great value in states of anxiety, where it is clarifying and strengthening. It is good for sluggish and congested skin and is an insect repellent. Used neat it is good for soothing wasp stings, insect, snake and scorpion bites.

Good for bad breath and in a mouthwash.

It has mildly antiseptic properties. The oil, has been used in traditional medicine for: mild nervous disorders, as a nervous stimulant, and for headaches, for muscle aches and pains.

Basil oil was trialled with good results in India as an antibacterial treatment for acne. The oils were found to have antimicrobial activity at fairly low dilutions.

An infusion of leaves has been traditionally used by village women in rural villages for the treatment of sunburn.

GINGER

Zingiber officinale

Externally it is an analgesic used for rheumatic pains and contusions. Women in Senegal use the tubers in the making of belts with the aim of arousing the dormant senses of their husbands.

Externally it is the basis of many fibrositis and muscle sprain treatments, it provides counter-irritation when applied to skin overlying an inflamed or irritated joint. Ginger baths decrease muscle soreness and muscle stiffness. It is rubefacient when applied externally in the fresh state.

It has been proved that the pungent principles of ginger are responsible for the pharmacologic activity. These are structurally related cardiotonic compounds called gingerols.

The volatile oil of ginger root was capable of inhibiting the growth of bacteria in a closed chamber.

It has been used traditionally in China as an antineoplastic. The isolates inhibited the growth of hepatoma tissue culture. In addition the juice prepared from the ginger root has been found to inactivate the mutagenicity of tryptophan pyrolysis products in vitro.

The root stock of the related *Z. capitatum* contains a heat stable interferon that possesses some immune-stimulating activity. It has no direct viral or antitumour activity.

HIBISCUS

Hibiscus abelmoschus

Abelmoschus moschatus Medic.

An emulsion made from the seeds is said to be useful for spasmodic problems. An emulsion made from the milk can be used for itchy skin. In Egypt, the seeds are chewed to relieve stomach problems, to soothe the nerves, and to "sweeten" the breath. Egyptians also consider the seeds to have aphrodisiac powers.

Both roots and fruit are used as demulcents, the leaves as emollient poultices.

The plant has astringent and demulcent properties. A decoction of the roots is used as an eyewash; while the bark is used as an emmenagogue; the flowers are said to be astringent.

The plant has mucilaginous and emollient properties similar to Mallow.

It is used in Africa and Asia as a cough remedy, wound dressing and diuretic. According to African traditional medicine, red sorrel flowers have a great variety of actions, e.g. spasmolytic, antibacterial, diuretic and anthelmintic. They have also been applied in ointments and compresses.

Used in sophisticated perfumes, in folk medicine it is used as a stimulant and an antispasmodic.

In Egypt the seeds are chewed as a stomachic, nervine, and to sweeten the breath and are also used as an aphrodisiac and insecticide.

The petals are demulcent. Leaves are emollient, anodyne and aperient or laxative. Hibiscus is useful in menorrhagia, strangury, cystitis and other conditions of the genito-urinary tract; it is also a refrigerant drink in fevers and a demulcent in cough.

Hibiscus is useful as anti-dandruff, anti-infective; prophylactic against skin diseases and allergic conditions, checks hair loss, stimulates hair growth and darkens the hair.

CONCLUSION

This has been a short expedition into the African continent, where we have found fragrant plants used not only for their perfume but also for their many other differing properties. In the next article we shall be looking at the plants used specifically on the skin and continuing the exploration of the 'Dark Continent'.

[4500 WORDS]