DRAFT

ARTICLE FOR COSMETICS & TOILETRIES

INDIAN PLANTS

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INTRODUCTION

In the third of this series of articles on useful plants we move to a land of fragrant oils and ancient medicine to gods with names like Ganesh, Krishna and Shiva (Shiva the god to whom Yoga and the destruction of disease are ascribed). A land of patchouli, cedarwood, cinnamon and precious spices, of exotic flowers like gardenia and hibiscus and oils of exotic roses, galingale, vetiver and lemon grass, and home to the luxurious and sensuous jasmine. To India, a continent rich in history and well versed in the use of plants, through the practices of Ayurveda, Unani and Siddha systems of medicine. This paper may well stray into neighbouring countries, since plants know no boundaries!

SKIN TREATMENTS

Psoriasis

There are many plants used for the control and care of psoriasis, the following is a brief overview.

GOA POWDER

Araroba or *Andira araroba* is also known as Goa Powder or Bahia Powder. The medullary matter of the stem and branches, dried and powdered, is used. It contains about 80% of chrysarobin, which is probably responsible for its activity. Chrysarobin is a reduced quinone. In India and South America it has been esteemed for many years for ringworm, psoriasis, dhobi's itch etc., as ointment, or simply moistened with vinegar or saliva [1].

Bep Oliver [2] refers to a related species Dog Almond or Worm Bark which is known as *Andira inermis*, this is also used to treat psoriasis and ringworm of the scalp. The bark is, however, a dangerous poison in large doses, causing vomiting with drastic purgation, delirium and narcosis. Alkaloids present [3] are berberine, and angeline or andirine or geoffroyine which is N-methyl-tyrosiine.

THORNY PIGWEED

Amaranthus spinosus or *Amaranthus viridis* is Thorny Pigweed, the leaves of which possess mucilaginous properties. The Negritos of the Philippines [4] apply the bruised leaves directly to eczema, psoriasis, and rashes with good results. The leaves make a good emollient preparation available in some of the Filipino villages for insect bites, sunburn, and regular burns. In India the roots are used as a decoction for treating eczema and cobra bites and scorpion stings [5, 6].

SARSAPARILLA

There are a number of species of sarsaparilla, the most common are *Smilax ornata* and *Smilax regelii*, which contain saponins, sarsaponin and parallin, and yield isomeric sapogenins, sarsapogenin and smilogenin. It also contains sitosterol and stigmasterol in the free form and as glucosides. It is indicated for psoriasis, and other cutaneous conditions, but it is specific for psoriasis where there is desquamation [7]. This is confirmed by Hoffman [8], who says that the root and rhizome are used in scaling skin diseases such as psoriasis, especially where there is much irritation. Bradley [9] mentions other species of the plant, particularly of *S. aristolochiaefolia* Miller, *S. febrifuga* Kunth., *S. ornata* Hooker and *S. regelii* Killip et Morton, which are also indicated for skin disorders such as psoriasis and eczema; rheumatism and rheumatoid arthritis. Exploring the Internet, one discovers *S. ovalifolia* and *S. lanceaefolia* are also being used medicinally in India [10].

PAPAYA AND PAPAIN

Leung [11] says papain is derived from *Carica papaya* and is also known as vegetable pepsin. It was formerly used in treating a wide variety of illnesses or conditions including infected wounds, sores, ulcers, tumours, and psoriasis. One of the major current uses is in preparations to control edema and inflammation associated with surgical or accidental trauma, infections or allergies. It is also used in certain face creams, cleansers, "face lift" formulations, and dentifrices, and as the active ingredient in enzyme cleaners for soft lenses, among others.

TURMERIC

The rhizome of *Curcuma longa* has been used as a medicine, spice and colouring agent for thousands of years. A native of India and Southeast Asia, it is now cultivated in many countries, but India still accounts for a large percentage of world production. Turmeric appears in an Assyrian herbal dating from about 600 BC and was also mentioned by Dioscorides. In India, turmeric is regarded as a stomachic, tonic and blood purifier, which is used for poor digestion, fevers, skin conditions, vomiting of pregnancy and liver disorders. Externally it is used for conjunctivitis, skin infections, cancer, sprains, arthritis, haemorrhoids and eczema. Indian women apply it to the
skin to reduce hair growth [12].

Turmeric has a warm, bitter taste and is a primary component of curry powders and some mustards. The powders and its oleoresins are also used extensively as food flavourings in the culinary industry. The spice has a long history of traditional use in Asian medicine. It also has been used topically as a poultice, as an analgesic and to treat ringworms [13].

Among the dark races of India. turmeric has been used since time immemorial to treat skin problems. Both the Ayurvedic and the Unani practitioners have used a paste of powdered turmeric or its fresh juice made into a paste or a decoction of the whole plant as a local application in the treatment of leprosy and cobra bites. It is especially useful for indolent ulcers on the surface of the skin and gangrene in the flesh. A paste made from

the powdered rhizomes along with caustic lime forms a soothing remedy for inflamed joints [6].

It is also used as an external application by some women in India to suppress the unwelcome growth of facial hairs and upper lip moustaches [14]. In Northern India the rhizome is used by many natives for treating cuts, burns and scalds [15].

The use tremendous value of this plant is confirmed by its use in other countries. The natives of Samoa use the powdered rhizome to sprinkle on new-born infants to help heal a recently cut umbilical cord, to prevent nappy rash from occurring, and to keep the skin soft and resilient. The powder is also used as a paste or poultice to treat skin ulcers and to help heal extensive skin eruptions [16]. In parts of Africa, turmeric has been successfully tested for healing rashes due to allergies, the inflammation in psoriasis and itching [17].

CAJUPUT

Cajuput or *Melaleuca leucadendron* is a close relative of the Tea Tree Oil plant or *Melaleuca alternifolia* and so perhaps it should not be a surprise that this plant has use in treating sores, dermatoses (skin diseases) such as psoriasis and acne [18].

The Negritoes of the Philippines sometimes use cajeput oil as a local application in chronic forms of psoriasis and eczema. It is also rubbed over painful, chronically inflamed joints and on varicose veins and pulled tendons and ligaments for relief [4].

GOTU KOLA

The Indian Pennywort or *Centella asiatica* [Syn. *Hydrocotyle asiatica*] is a plant worthy of study, since it has numerous uses around the world in the treatment of chronic skin conditions [19, 20]. It is a slender, creeping plant that grows commonly in swampy areas of India, Sri Lanka, Madagascar, South Africa and the tropics.

Gotu Kola has also shown much promise in treatment of psoriasis. When creams containing oil and water extracts of the leaves were administered each morning to 7 psoriatic patients. Five showed clearance of lesions within 3 to 7 weeks. One showed improvement without clearance and the other clearance of most of the lesions.

SOAPWORT

Soapwort, Bruisewort, Bouncing Bet, Dog Cloves, Fuller's Herb, Latherwort, Lady's-Washbowl and Old-Maid's-Pink or *Saponaria officinalis* contains saponins (to 5%), comprising saporubin and saprubrinic acid; gums; flavonoids; vitamin C and vitexin. It has been used in the topical treatment of certain skin conditions, including acne, psoriasis and eczema. In India the prepared rootstock is considered a galactagogue [21, 22]. An extract of the roots is still a popular remedy of poison ivy [23]. Soapwort was grown on the 19th century herb farms of the American Shakers. The leaf, stem and root are used cosmetically, by boiling in soft water and straining to wash hair and sensitive skins. Medicinally, the root decoction is used as a wash for acne and psoriasis.

Acne

HOLY BASIL

In India, *Ocimum sanctum* or Kovil Tulsi is one of the sacred herbs [24], which is grown in houses and temples in all areas of the sub-continent. It is a powerful medicinal plant and much has been done to validate its medicinal activity, and *Ocimum sanctum* extracted in methanol and fed to rats was found to exert an immunostimulatory effect [25]. When basil oil was tested in trials in India as an antibacterial treatment for acne, it produced good results [26], this activity could well be due to the antibacterial activity which is present in this family. An excellent study of oils from 4 types of *Ocimum* species, found that although there was variation, all the oils were found to have antimicrobial activity at fairly low dilutions [27].

RED SANDALWOOD

Red Sandalwood, raktachandana or *Pterocarpus santalinus* is ground to a paste with water or honey, and applied topically as a popular home remedy used in southern India, especially Kerala, for post-acne and other facial scars. However, this treatment may produce allergic contact dermatitis, which though rare in this species is more commonly seen with *Santalum album* [28].

SANDALWOOD

Known by the Indian and Sanskrit name of Chandan, *Santalum album* is used for its volatile oil. It is astringent, cooling, deodorant, disinfectant, stimulant and tonic. Sandalwood is useful in cutaneous inflammation, where the chief uses are in skin care, to soothe cutaneous inflammation, as an antiseptic, a skin softener, and to invigorate peripheral blood circulation in the skin. It acts as a prophylactic against skin diseases and allergic conditions, is haemostatic or styptic, and removes skin blemishes.

It has been used since earliest times as incense, in embalming and cosmetics. In ancient India it was used in religious ceremonies. Mentioned in the Nirukka the oldest vedic commentary written (15th century BC). In India and Egypt it is used as a perfume. Effective against *Streptococcus aureus*. It relieves itching and inflammation of the skin and acts as an antiseptic in acne [29]. Good astringent for oily skin.

CEYLON LEADWORT

Plumbago zeylanica is extremely popular throughout Africa and Asia as a remedy for parasitic skin diseases, especially leprosy, scabies, acne vulgaris and surface sores and leg ulcers [30,31].

The root has been shown to contain plumbagin, a yellow naphthoquinone, which is responsible for its antimicrobial and antibiotic activity [32, 33]. A very dilute solution (i.e. a concentration of 1:50,000) of plumbagin is lethal to a wide spectrum of bacteria and to pathogenic fungi, i.e. *Coccidioides imminites, Histoplasma capsulatum, Trichophyton* spp., *Candida albicans, Aspergillus niger* and *A. flavus* [34].

PEA

Even the humble pea or *Pisum sativum* has value in the treatment of acne [35]. The seeds are used, which contain proteins, lecithins, carbohydrates, fats and salts. It is nutritive and antidermatosis. They have an appreciable effect on many types of skin complaint. Face masks made from the crushed fresh fruits are used in cases of acne and on faded, wrinkled skins.

CAMPHOR
Cinnamomum camphora

Camphor or *Cinnamomum camphora* has an aroma that is fresh, clean and very piercing. It is grown in the East, principally Borneo, China, Sri Lanka, Madagascar and Sumatra. It has white flowers which lead to red berries. This long-lived tree (often up to a thousand years) is not touched until it is about 50 years old.

The action on the skin is cooling, therefore reduces inflammatory conditions. Oily skins seem to benefit most and it has been used in cases of acne, burns and ulcers. Cold compresses for bruises and sprains are usually effective [36].

PUMPKIN

The natives of Central America rub the oil extracted from the seeds of *Curcubita pepo* on herpes lesions, venereal sores, acne vulgaris, and stubborn leg ulcers which refuse to heal up. Pumpkin leaves are also applied as poultice on sprains and pulled ligaments. The roots are made into an infusion and used on syphilitic sores, herpes lesions, pimples and blackheads [37]. However, this is a plant that is common on the Indian continent where the plant has similar uses.

This species has been the subject of a patent [38]. Details of a patent are given relating to
carbon dioxide extraction of Cucurbita spp. The extracts are suitable for use in cosmetics for treatment of juvenile acne and as antiseborrhoea agents.

CHASTE TREE

As often happens, a plant that is well-known on another continent becomes the subject of another countries attentions. *Vitex agnus-castus* has been examined for the treatment of acne [39, 40]. In India the plant is more often used to treat bites, eye diseases and most especially menstrual disorders.

DANDELION

Taraxacum officinale or dandelion is a plant that is common universally and it is used for acne, biliousness, boils, constipation, cystitis, dyspepsia with sluggish digestion, rheumatism [41]. In another reference [42], the plant is recommended for skin complaints such as spots, pimples and acne, where a course of dandelion tea and eating fresh young leaves in salads will help clear the skin.

BLACK WALNUT

Hutchens [43] refers to *Juglans nigra* as Black Walnut. There are six species of the walnut, genus Juglan, which are native to the United States. Black Walnut is among them, widely distributed in the eastern states and extending to adjacent Canada.

The bark, leaves, rind and green nut are most commonly used. The bark in particular is quite astringent, while the leaves have a cleansing (detergent) property [44].

An old American recipe for scrofula is treated with 1 cup of the leaves boiled in 1 quart of water, made fresh daily and used often with honey. This should be continued for several months. The dried leaves may be used when the green cannot be had. It is also used homoeopathically, where a tincture of leaves and of rind of green fruits is used for acne, chancre and herpes.

Juglans regia is known as the English Walnut, where the leaves are the medicinal part used in India. The leaf decoction is used externally as a wash or bath additive for rheumatism, gout, glandular swelling, gum problems, scrofula, sweaty feet, acne, dandruff, other skin problems.

The constituents are approximately 10% tannin (ellagitannins), which are responsible for the astringent properties. Juglone (or 5-hydroxy-1,4-naphthoquinone), and hydrojuglone almost entirely in the form of the monoglucoside; juglone is present only in traces in older leaves and in the drug. Related compounds, including a series of volatile 1,4-naphthaquinones like plumbagin, beta- hydroplumbagin, and others are present in other parts of the plant (stem bark, fruit husks). Flavonoids: quercetin, hyperoside, quercetrin etc. Gallic, caffeic and neo-chlorogenic acids [45].

HEARTSEASE or WILD PANSY

Viola tricolor is a healing herb and can be used externally to soothe and relieve pain. Launert (B94) The active ingredients are saponins, the glycoside gaultherine, salicylic compounds, tannin, mucilage, flavonoids. It is effective against skin diseases (acne, pruritis eczema etc.). It can be used as an infusion taken internally (2 teaspoons per cup) 2-3 times a day, and applied externally, applied to the skin by means of a compress [46]. It is picked when it comes into flower (even the roots can be kept) and dried as quickly as possible for, although taken from the ground, growth continues and diminishes its effectiveness [47].

In India it would be more than likely that the *Viola yedoensis* or Wild Chinese Violet is used. The whole plant is used for its antipyretic, antidote, and antiphlogistic effect, especially where carbuncles, boils, ulcers and other skin conditions are indicated. The juice of the fresh root is applied externally to abscesses [48].

NEEM, NIMBA or MARGOSA

The natives of India use *Azadirachta indica* or neem leaves in various forms such as

poultices, ointments, and liniments for everything from leprosy, burns, gangrene, scabies, herpes lesions, eczema, and skin ulcers. Its use dates back into antiquity in Hindu Ayurvedic medicine [6], the seed oil has also been widely used in Asian medicine, and the therapeutic value of the oil has been confirmed as an anti-inflammatory and antibacterial agent [49]. There are also reports that the plant has insecticidal and spermicidal properties [50]. There are also a number of reports that the plant can be toxic when ingested [51, 52].

There has been some confusion in the nomenclature between *Melia azedarach* and *Melia azadirachta* (*Azadirachta indica*). Oil obtained from the latter (*Melia azadirachta*) is known as margosa oil, neem oil, nim oil and oleo margosa. These names have been incorrectly applied to the oil of *Melia azedarach* as well. Some caution is advised with the correct identification of this plant [53].

A tincture of *Azadirachta indica* when compared with aspirin (200 mg/kg gave 10%) and indomethacin (4 mg/kg gave 29%) reduced inflammation by 18% for 800 mg/kg of dry extract. The experiment was performed on carrageenin-induced rat paw edema and three doses of neem were used - 400, 800 and 1600 mg/kg [54].

The tree was not known in America, as early as 1883 and appears in the U.S. Dispensatory of that date [55]. Under *Azedarach indica* or Nim Tree. "The inner bark of this tree is extensively used in India as a febrifuge and tonic, in the form of powder, or more usually in that of decoction. The roots are said to be vermifuge, and the seeds yield an oil largely used for lighting purposes and sometimes as a medicine."

The Pharmaceutical Codex of 1923 [56], also makes mention of Neem, "Indian azadirach is used as a simple bitter, in the same way as gentian or quassia, for which it is employed as an equivalent in India and the eastern Colonies, being administered usually in the form of tincture or infusion."

CONEFLOWER

The Purple Coneflower or *Echinacea angustifolia* is one of the most interesting plants of recent times and has been the subject of much serious research. Its traditional use has been for the treatment of acne, boils and mastitis [57], an effect that may be due to the antiseptic properties of the plant. The latest thinking on Echinacea is that it is very effective in increasing the ability of the immune system to fight infections, it is a stimulating alterative for use in helping cleanse the body in septic conditions or where resistance to infections is lowered [58].

In a recent paper [59] it is reported that Echinacea has been used successfully in cases of blood poisoning. It was reported that Echinacea was useful against cancerous growths especially of mucous membranes. It has been used to lessen the pain and inflammation of gonorrhoea and syphilis, tonsillitis, impotency and skin disorders, i.e. eczema, psoriasis, acne, poison ivy, irritation.

In another paper [60], it is said that the root and rhizome are used in folk medicine for their antiseptic and vasodilator activities, and are indicated for furunculosis, septicaemia, pyorrhoea, tonsillitis, and particularly for boils, carbuncles and

abscesses. They are reported to be depurative, digestive, and confirm the effectiveness against eczema and acne.

ONION

A plant does not have to be exotic to have value as a skin treatment, even something as apparently mundane as the common red onion or *Allium cepa* can have beneficial effect. It has been used externally as a poultice for acne, chilblains and arthritis (to draw out inflammation) and the juice applied to blemished skin [61].

Onion poultices are used on boils, abscesses and blackheads to draw out the infection, decrease inflammation and speed healing. In Africa onion juice has been applied to burns and scalds to prevent blistering and infection [62], and the natives of East Africa sometimes use the skin of the onion as a sticking plaster on facial and body sores [53].

A French physician by the name of Ambroise Paré developed an important treatment for major and minor burns incurred through flames, gun powder burns, and explosions, using fresh onion juice [63].

BATH PRODUCTS

There are dozens of plants used for washing or bathing in India and it would be unrealistic to try to mention all of them, so a few of the more interesting materials are discussed.

KARANJA TREE or INDIAN BEECH NUT TREE

Pongamia pinnata Vent. [Syn. *Derris indica* (Lam.) Benn., *Pongamia glabra* Vent.] family Papilionaceae has the English name Indian Beech nut, the Kannada names are Honge, Hulugala or Kanigemara. *Pongamia* species grows extensively across India, and the seed oil is commonly used in Indian Ayurvedic medicine for the treatment of skin conditions, for skin protection and rheumatic pain. It is taken internally for bronchitis and whooping cough [64]. Pongamia extract contributes and/or enhances the UV absorbing properties of a conventional sunscreen. It helps to broaden the UV protection.

The seeds crushed to a paste are used for leprosy, skin disorders and painful rheumatic joints [65]. A paste made from crushed leaves is applied as a poultice to wounds [66], and a hot infusion of the leaves is used as a medicated bath for relieving rheumatic pains, and for cleaning foul ulcers and sores The seeds are high in non-edible oil which is used in the preparation of soap.

Pongamia pinnata, Linn., used in the Ayurvedha and Siddha traditional medicine systems, for treatment of clinical lesions of skin and genitalia, was evaluated for antiviral properties against herpes simplex virus type-1 (HSV-1) and type-2 (HSV-2) by in-vitro studies in Vero cells. A crude aqueous seed extract of P. pinnata completely inhibited the growth of HSV-1 and HSV-2 at concentrations of 1 and 20 mg/ml (w/v), respectively, as shown by complete absence of cytopathic effect [67].

SOAPBERRY or SOAP NUT

Soapberry is also known as *Sapindus indica*, whereas Soap Nut is more usually called *Sapindus detergens* Roxb or *Sapindus mukurossi* Garten.

Manning [68] refers to Soapberry as *Sapindus marginatus* (family: Sapindaceae) where the fruit pulp used as a substitute for soap. In India, the Soap Nut or *Sapindus trifoliatus*is known locally as Reetha or Ritha (Hindi) or Aristaka (Sanskrit).

One fruit in forty parts of water provides a hair wash which promotes the growth of hair and removes dandruff. Assessment of a cosmetic company on this traditional shampoo.

The spring of Northern India is celebrated with Holi, or the Festival of Colour. Participants smear orange, purple, red, green, yellow dyes, powders and paints over each other's heads and bodies. It is very difficult to rid the hair of these dyes, but the traditional soap-nut hair wash rinses out the colours while conditioning the hair and the scalp at the same time [69]. Using the soap nut as a base, Indian women concoct their own shampoos, frequently mixing it with a medicinal combination of three myrobalans or other ingredients such as turmeric or coconut pulp.

LOVE-LIES-BLEEDING

There are a number of species of this plant among which are: *Amaranthus spinosa*, *Amaranthus hypochondriacus* and *Amaranthus caudatus*. It has the country names Velvet Flower, Red Cockscomb, Prince's Feather, Balder Herb, Floramor, Flower Gentle. It has the symbolic meaning of hopeless and heartless [70]. A few examples are given from this enormous family!

Other members of the family include *Amaranthus paniculatus* Linn, *Amaranthus speciousus* Sims., *Amaranthus sanguineus* Linn., *Amaranthus strictus* Willd., *Amaranthus frumentaceous* Ham., *Amaranthus farinaceus* Herb. Roxb., *Amaranthus anarcadana* Ham., *Amaranthus flavus* var. *bracteatus* Linn., *Amaranthus caudatus* Merr., which in Sinhalese is known as Rana-tampala, in Hindi as Chuamarsa, Ganhar, Kalgaghasa, in Sanscrit as Rahadri, Rajagiri, Rajashakini. Certain hill tribes in India and Africa use the plant as a staple food. It is given for scrofula and applied topically to scrofulous sores.

Amaranthus spinosa Linn.. or Prickly Amaranth, which is known in Sinhalese as Katu-tampala, in Hindi as Cholai, Kantenatia, in Sanscrit as Alpamarisha, Bahuvirya, Bhandira, Ghamasrana, Granthila, Kandakamarisha, Kandera, Meghanada, Pathyashaka, Sphurjathu, Sushaka, Svanitavhaya, Tandula, Tandulanama, Tanduleraka, Tandulibija, Tanduliya, Vira, or Vishaghna. In Tamal it is called Mullukkirai or Mudkirai.

The plant is used as a sudorific and febrifuge and is recommended for eruptive fevers. The leaves are considered a good emollient, lactagogue and a specific for colic. Externally, the bruised leaves are applied locally on eczema.

Amaranthus tricolor Linn., *Amaranthus gangeticus* Linn., *Amaranthus lanceolatus* Roxb., *Amaranthus tristis* Linn., *Amaranthus oleraceus* Roxb., *Amaranthus polygamus*

Roxb., *Amaranthus lividus* Roxb., *Amaranthus amboinicus* Herb. Ham., *Amaranthus inamoenus* Willd., *Amaranthus melancholicus* Linn., *Amaranthus mangostanus* Linn., or Love-lies-bleeding, Red Cock's-comb. In Sinhalese it is called Sudu-tampala, in Tamal it is Arikkirai or Chirukirai, while in Hindi it is known as Lalnatiya or Rajkiri and in Sanscrit it is Marisha

This plant is an astringent and it is used externally as a gargle in ulcerated conditions of the mouth and throat and as a wash and poultice for ulcers and sores [71].

Reports of teratogenicity and carcinogenicity have not been adequately substantiated and Amaranth is presumed to be safe at present [72].

TERMINALIA

The Combretaceae family has a genus called Terminalia, which is an extremely large and important genus of plants [73]. Many of the species within this genus have antibacterial and useful skin properties. The most important species in India are discussed briefly.

Terminalia arjuna: A decoction of the bark is used to wash ulcers.

Terminalia bellirica: The pericarp of the dry fruit is an ingredient in many decoctions for a variety of diseases. It is one of the myrobalans which go to form the "Thippal" which is largely used by every Ayurvedic physician for all the diseases of the human body and is used in many of their stock preparations. The fixed oil extracted from the seeds is considered a beneficial application for the hair and for rheumatism.

Terminalia catappa Linn.: In India, the juice of the young leaves is used to prepare an ointment for scabies, leprosy, and other cutaneous diseases. In East Indies, the plant is used externally on skin diseases. In Indo-China, the leaves are used as a sudorific and also applied to rheumatic joints.

Terminalia chebula: It is finely powdered and used as a dentifrice useful for carious teeth, bleeding and ulceration of the gums. The ashes of the fruit mixed with butter form a good ointment for sores. Regular use of the powder with king-coconut water is supposed to improve the complexion.

Terminalia tomentosa: The powdered bark mixed with oil is used to remove apthae. It is also applied externally on ulcers and on fractures [74].

COCKSCOMB or QUAIL GRASS

The seeds of *Celosia argentea* L. [Syn *Celosia margaritacea* L] are used medicinally as an ophthalmic antiphlogistic and astringent in conjunctivitis or retinal haemorrhage [52]. The flowers of *Celosia argentea* var. *cristata* Bth., are officinal and used as astringent, haemostatic, anti-diarrhoeic in dysentery, enterorrhagia, metrorrhagia, epipstaxis.

The leaves of *Celosia argentia* [Syn. *Celosia argentea*] are used to treat itching, and the water extracts of the seeds are used as an eye-wash. Two rare isoflavones, 5-methoxy-6,7-methylenedioxy-2'-hydroxyisoflavone and

2',5-dimethoxy-6,7-methylenedioxyisoflavone, were isolated from the aerial parts of *Celosia argentia* [75].

It is interesting to note that similar species have similar use in Africa. *Celosia laxa* as anthelmintic, for rheumatism, stomach ache, ritualistic use, skin diseases and as an embrocation for pains. The fruits and leaves are used. *Celosia hastata* is also used for dysentery, skin diseases, as an anthelmintic and for arthritis [76].

The safety of these species is not envisaged as a problem, *Celosia argentea* Linn. (Amarantaceae) is a troublesome weed in flax fields, but it is gathered and consumed as a vegetable [77]. The leaves and shoots of *Celosia argentea* L. are edible. Also the leaves and shoots of *Celosia schweinfurthiana* Schinz. are also edible. *Celosia trigyna* L. [Syn. *Celosia laxa* Schumach. & Thonn.] has edible leaves [78].

The leaves are used in poultices in China on infected sores, wounds and skin eruptions and in India mixed with honey on inflamed areas and painful afflictions such as buboes, abscesses etc. The whole plant is used as an antidote for snake bite and the root as a specific for colic, gonorrhoea and eczema. The water in which the leaves, flowers and stems have been boiled is used as a body wash for convalescents [79].

LOTUS
Nelumbium nelumbo

The Lotus mentioned by Theophrastus was probably *Lotus zizyphus*, but the Sacred Lotus or Bean of India is most certainly the *Nelumbium speciosum*.

It is the symbol of Brahma, the impersonal and abstract conception of God; of Vishnu, the second, personal, essence of God; and the symbol of Gotama Buddha to whom daily prayer is offered: "Om mani padme hum", meaning "Hail to the jewel in the flower of the lotus" [80].

The Chinese goddess of mercy, Kwan Yin is depicted sitting on a lotus. Amida, the Japanese Buddhja, is always shown as seated on the blossoms of the lotus. Hap, the god of the south Nile, was clearly depicted ensconced on a lotus, as was Horus the youthful sun god of ancient Egypt. The flower is almost universally considered a symbol of purity and holiness [81].

In bath preparations it has a vitalising or activating effect, an effect relished by the geisha and sing-song girls from the use of the flower in their daily skin care remedies [82].

HAIR CARE

There are numerous plants for the care of the hair, some are less well known that others.

Pithecellbium bigeminum is cited for the promotion of hair growth [83]. A few will remember the use of anti-macassars on the backs of chairs to protect them from being damaged by hair oil, that hair oil was made from *Schleichera trijuga* or Macassar oil from India, which is also known as the paka or kussum tree [84].

A cassia known as *Cinnamomum cassia*, which yields an oil used in barbers' shops was mentioned in Exodus as being used by Moses on sacred occasions. It is massaged in to the scalp to keep the hair dark and to help prevent baldness in men [85]. Queen Isabel of Spain had powdered cassia bark used in her talcum powder with orris root (*Iris florentina*) cloves and a few grains of musk.

ROSE APPLE

Another plant Rose Apple or *Eugenia jambos* Bianchini (B102) says that it is a species originally from India and is grown today extensively in Florida [86]. Its name derives from the delicate fragrance of roses that is noticeable when the fruit is eaten. The rose apple is about the size and colour of an apricot, with one to three seeds inside. The name in India is Jambul or Jambu, a closely related species is *Eugenia jambolana*, also known as Phalendra in Sanskrit. The fruits and leaves are used.

Tribal use of Jambu in India is as a ritual post-natal facial wash and in facial wound healing remedies. Jambu is a unique Southern Indian plant which also has the properties of stimulating the scalp and regenerating damaged hair [87].

SHELLAC

The term shellac is used only for the purified lac, which is a natural resin secreted by the tiny insect *Kerria lacca* on certain trees and bushes, principally in India and Thailand. Known for more than 3000 years, lac is mentioned in early Sanskrit writings.. In the Atharva Veda the origin of lac, the lac insect and the application for lac for medicinal uses are briefly described. Lac and laksha are said to be derived from the Sanskrit word "lakh" for 100,000 due to the large number of insects producing this resin.

The word 'lacquer' also owes its root to the word 'lac'. Shellac is probably the only commercially used natural resin of animal origin. In addition to being used to produce the old 78 rpm records and to insulate electrical windings, it was also used as a hair lacquer resin [88].

The Lac host tree in India are the Kusum-trees [*Schleichera oleosa* (Lour.) Oken], and another species Ber-trees (*Lizyphus mauritiana* Lamk.) In Thailand the Lac host tree is the Rain tree [*Samanea saman* (Jac.) Merr.] [89]. The film forming properties make shellac an ideal compound for hair care products, be it fixatives, pump sprays, aerosol sprays or even mascaras. The film is easily washable with soap or shampoo, so that the hair can easily be freed from the resin. Shellac is compatible with all common plasticisers.

COMMON INDIGO or INDIAN INDIGO

In India, *Indigofera tinctoria* is the source of an important blue dyestuff [1]. It does not exist ready formed, but is produced during fermentation from another agent existing in the plant. This is called Indocan, and is yellow, amorphous, of a nauseus bitter taste with an acid reaction. The plant contains alkaloids, glycosides and oleoresin. Its action is anti-microbial. Wild Indigo is a herb to be considered wherever there is a focus of infection [90].

Externally the ointment will help infected ulcers and sore nipples. A douche of the decoction will help leucorrhoea.

Mummified remains from Egyptian tombs show that a mixture of Henna and Indigo [21] (*Indigofera tinctoria*) shoots called Henna reng, was used to colour hair and false beards to a youthful blue-black, a practice that is still found in India today.

It is the leaves that yield the dye, and they are soaked in vats filled with water for several weeks, the solution turning deep yellow. This oxidises to form an insoluble precipitate of indigo, used to intensify the black hair of Indian women who soak the dried (or fresh) leaves in water and usually apply it mixed with henna as a paste [85].

SCARLET PIMPERNEL

Anagallis arvensis has a bright scarlet flower. The ancient Greeks were fond of the flower, which they used in the treatment of eye diseases. The herb is also prescribed in cases of jaundice, dropsy and inflammation. The plant has cosmetic properties, applied as a skin lotion, a standard infusion regulates the pigmentation, removing freckles and other minor blemishes. The same lotion is used as a hair restorer [91]. The aerial parts contain various saponins and an enzyme. The root is rich in cyclamine, a crystalline saponin. Cyclamine is toxic and fish are particularly sensitive to it. The plant is used for fishing in parts of India [92]. Previously medicinal, the plant is no longer used in homoeopathy. A tincture prepared from the fresh plant is, however, used to treat skin eruptions and ulcers, also as a cholagogic and diuretic. It is also used to treat stings and bites, to soothe nettle rash, poison ivy rash, and to treat swellings. There is also a blue pimpernel which is of lesser medicinal value [93].

BHRINGRAJ or MAKA

Eclipta alba Hassk. Is a member of the Asteraceae or Compositae family. The herb, root and leaves are used. Medicinally, bhringraj is indicated for a number of problems including skin diseases. In the cosmetic field it is used as a hair darkener, for skin toning and stimulation, and invigorating peripheral blood circulation of skin. It is traditionally used to check hair loss, stimulate hair growth, and is therefore useful in hair care [94, 95].

This is a species found across China, Taiwan, Indochina, India, Japan, Philippines. (Syn. *Eclipta erecta* L., *Eclipta prostrata* L., *Eclipta thermalis* Bunge., *Eclipta marginata* Boiss.)

The entire plant is officinal. The taste is sweet-sour. The plant contains nicotine. It is prescribed as an astringent haemostatic. Dose 5-10g. The extracted juice of the fresh herb is applied to the scalp to promote hair growth and taken internally it blackens the hair and beard [52]. Elderly women use an herb decoction to rinse hair; the plant possesses a bluish-black dye, and they say there is no need for white hair as long as *Eclipta* is available [83]. It is also found and used in Egypt, where juice of the fresh plant is applied to the scalp to promote hair growth, taken internally it blackens the hair and beard [96].

Eclipta prostrata which is also known as Bhringaraja in Ayurvedic or Bhangra in Unani is mainly used in hair oils. In hair oils, it may be used along with *Centella asiatica* and

Phyllanthus emblica. The paste prepared by mincing fresh plants has an anti-inflammatory effect and may be applied on insect bites, stings, swellings and other skin diseases. In Ayurveda, it is mainly used in hair oil, while in the Unani system, the juice of *Eclipta prostrata* is used in "Hab Miskeen Nawaz" along with aconite, *Croton tiglium, Piper nigrum, Piper longum, Zingiber officinale* and minerals like mercury, sulphur, arsenic, borax, etc., for various types of pains in the body. It is also a constituent of "Roghan Amla Khas", for applying on the hair, and of "Ma'jun urrawah-ul-arwah" [97].

WITHANIA

Withania somnifera Dunal, *Withania coagulans* Dunal or Withania has the common Indian names aswagandha (or Asvagandha) and ashwagandha, it is known as Vijaya Kala Gandha in Sanskrit. It is also known by the pretty name of Hair Flower tree.The plant is related to the tomato and potato plants and is found throughout the drier regions of India, Afghanistan and as far west as Israel.

It has always had a prominent place in Ayurvedic, Unani, and ancient Indian systems of medicine, where it is used to restore the "balance of life forces" much in the same way as ginseng an eleutherococcus are used. It is often referred to as "Indian ginseng". The dried fruits and roots are anti-inflammatory and used topically for the management of swelling and ulcerations [98].

The flowers of withania are an exclusive hair care remedy in India. Other parts of the shrub are considered for diverse applications, including use as an aphrodisiac, immuno-stimulant and to combat debility due to old age. It nurtures and clarifies the mind, calms and strengthens the nerves and promotes sound, restful sleep. A leaf infusion is given in fevers and bruised leaves are applied with good effects to boils and swellings. The fruit and seeds are diuretic whilst the seeds are said to be hypnotic. The plant is good for circulation of the scalp, improving the structure of the hair, in preparations against greasy hair and dandruff [99].

It is also known as Winter Cherry or Balada flowers [87], and is one of the most widely used rejuvenative tonic herbs in India. An adaptogenic, ashwaganda has been studied scientifically and shown to contain numerous nutrients including plant sterols. Since it is anabolic, this herb provides an excellent, safe alternative to steroids for increasing muscle mass [100].

CONCLUSION

It has been impossible to do the Indian continent justice in this article, since there are so many plants used in their society for both medicinal and cosmetic use. You will notice that many of the references have come from other continents, this is not surprising, since not only have the Hindu and Sikh religions spread across the globe, taking their traditional medicines with them, but one also has to remember that the British took away much of the knowledge during their colonial occupation of that country.

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