Ageing is the accumulation of changes in a person over time. In the narrow sense, the term refers to biological ageing of human beings, animals and other organisms. In the broader sense, ageing can refer to single organisms within an organism (cellular senescence) or to the population of a species (population ageing). Ageing in humans refers to a multidimensional process of physical, psychological, and social change. Anti-ageing is the term used to slower down the process of ageing in the cells of the body. This concept is described under a separate section in Ayurved known as Rasayana Chikitsa. Various procedures and herbs having anti-ageing properties are described. Also separate groups of herbs having anti-ageing properties are described under the section of Vayasthapana Mahakashaya of Charak samhita viz. Amrita, Abhaya, Dhatri, Mukta, Sveta, Jivanti, Atirasa, Mandukaparni, Sthira, Punarnava. These have been proven for their anti-ageing effect by various researches.

Key words: Ageing, Charak Samhita, Abhaya, Dhatri, Punarnava

INTRODUCTION

In humans, ageing represents the accumulation of changes in a human being over time, encompassing physical, psychological, and social change. Reaction time, for example, may slow with age, while knowledge of world events and wisdom may expand. Ageing is an important part of all human societies reflecting the biological changes that occur, but also reflecting cultural and societal conventions. Ageing is among the largest known risk factors for most human diseases; roughly 100,000 people worldwide die each day of age-related causes, and it is the major cause of mortality in the developed world. There are three main metabolic pathways which can influence the rate of ageing: caloric restriction; the insulin/IGF-1-like signaling pathway; and the activity levels of the electron transport chain. Before these were discovered, ageing was considered to be a progressive decline in function. It is likely that these three pathways affect ageing separately, because targeting them simultaneously leads to additive increases in lifespan. Ageing and longevity are determined by a complex mixture of environmental and genetic factors. The genetic aspect has been demonstrated in studies of centenarians, and in model organisms where single-gene
mutations have been shown to dramatically increase lifespan. These genes have homologues in the mammalian genome, making them useful both in studying ageing and in identifying potential targets for interventions which increase lifespan. These genes also increase lifespan in mice, and in some cases have been associated with human longevity.

Vayasthapaka Drugs (Age Stabilizers)

Mahakashaya: The one approach is the prescription of a group of herbs named Vayasthapaka i.e. age stabilizer. Under the 50 Mahakashaya i.e. great extractives, all classes of great extractives are mentioned that cures various diseases or help contribute to positive health like age stabilization or enhancing aphrodisiac power.

Vayasthapak Mahakashaya: Vayasthapak is 50th number of Mahakashaya. This Vayasthapak group contains 10 herbs.

These herbs are listed below.

1. Amrita (Tinospora cordifolia (Willd) Miers)
2. Abhaya (Terminalia chebula Retz)
3. Dhatri (Emblica officinale Linn)
4. Mukta (Pluchea lanceolata Oliver & Hiem.)
5. Shweta (Clitoria ternatea Linn)
6. Jeewanti (Leptadenia reticulata (Retz.) Wight & Arn.)
7. Atirasa (Asperagus racemosus Willd.)
8. Mandookparni (Centella asiatica (Linn)
9. Sthira (Desmodium gigenticum D C)
10. Punarnava (Boerhaavia diffusa Linn)

In order to get maximum benefit from the herbs, one must use the herbs of Himalayan origin. The best quality herbs and fruits are those which are grown in the Himalaya. The information regarding taxonomy, the other names and the therapeutic uses of these ten herbs in the Ayurvedic texts is detailed below.

Amrita/ Guduchi

Guduchi consists of dried, matured pieces of stem of Tinospora cordifolia (Willd.) Miers. (Fam, Menispermaceae), a perennial climber found throughout Tropical India, drug collected during summer preferably in the month of May, drug is used in fresh form also.

Synonyms: Sanskrit: Amritavalli, Amrita, Madhuparni, Guduchika, Chinnobhava.

Taxonomic classification

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Ranunculales
Family: Menispermaceae
Genus: Tinospora
Species: T. Cordifolia

Description

Macroscopic: Drug occurs in pieces of varying thickness ranging from 0.6-5 cm in diameter, young stems green with smooth surfaces and swelling at nodes, older ones show a light brown surface marked with warty protuberances due to circular lenticels, transversely smoothened surface shows a radial structure with conspicuous medullary rays traversing porous tissues, taste bitter.

Constituents: Terpenoids and alkaloids.

Properties and action

Rasa: Tikta, Kashaya
Guna: Laghu
Virya: Ushna
Vipaka: Madhura
Kaarma: Balya, Dipana, Rasayana, Sangrahi, Tridoshamaka, Raktashodhaka, Jvaraghna

Dose - 3-6 g of the drug in powder form. 20-30 g of the drug for decoction.

Therapeutic Uses- Jvara, Kushtha, Pandu, Prameha, Vatarakta, Kamala

Abhaya/Haritaki

Haritaki consists of the pericarp of mature fruits of Terminalia chebula Retz. (Fam, Combretaceae), a moderate sized or large tree found throughout India, chiefly in deciduous forests and areas of light rainfall, but occasionally also in slightly moist forests, up to about 1500 m elevation, throughout India, flowers appear from April,
August and fruits ripen from October-January.

**Synonyms:** Sanskrit: Abhaya, Kayastha, Shiva, Pathya, Vijaya (Not Bhang)

**Taxonomic classification**
Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Myrtales
Family: Combretaceae
Genus: Terminalia
Species: T. chebula

**Description**

**Macroscopic:** Intact fruit yellowish-brown, ovoid, 20-35 mm long, 13-25 mm wide, wrinkled and ribbed longitudinally, pericarp fibrous, 3-4 mm thick, non-adherent to the seed, taste, astringent.

**Constituents:** Tannins, anthraquinones and polyphenolic compounds.

**Properties and Action**
*Rasa:* Madhura, Amla, Katu, Tikta, Kashaya
*Guna:* Laghu, Ruksha
*Virya:* Ushna
*Vipaka:* Madhura
*Karma:* Cakshusya, Dipana, Hridya, Medhya, Sarvadoshaprasama
*Dose:* 3-6 g of the drug in powder form. 20-30 g of the drug for decoction.

**Therapeutic Uses** - Shotha, Arsha, Aruchi, Hridroga, Kasa, Pandu, Prameha, Udavarta, Vibandha, Jirna-jvara, Vishamajvara, Netraroga, Damakasvama, Gulma, Udararoga

**Dhatri/ Amalaki**

Amalaki consists of fresh fruit pulp of *Emblica officinalis* Gaertn. (Fam. Euphorbiaceae); a small or medium sized tree, found in mixed deciduous forests, ascending to 1300 m on hills and cultivated in gardens and home yards.

**Synonyms:** Sanskrit: Amalaka, Amrithaphala, Dhatri phala

**Taxonomic Classification**
Kingdom: Plantae
Family: Euphorbiaceae

**Rasna** consists of dried leaf of *Pluchea lanceolata* Oliver & Hiern. (Fam. Asteraceae); an annual, ashy and pubescent, undershrub having spreading roots extending to several metres; it grows abundantly in sandy soils in upper Gangetic plain and Rajasthan. It flowers during cold season.

**Synonyms:** Sanskrit: Suvaha, Sugandha, Yukta.

**Taxonomic Classification**
Kingdom: Plantae
(Order: Plantae) Angiosperms (Unranked): Eudicots (Unranked): Asterids
Order: Asterales
Family: Asteraceae
Subfamily: Asteroideae
Tribe: Plucheeae
Genus: Pluchea

**Description**

**Macroscopic:** Leaves simple, 3-5 cm long, 0.6-2 cm broad; sessile, obtuse, lanceolate to ovate lanceolate; margin entire or toothed
around the apex, unequal at base; both surfaces pubescent, distinct small hairs more prominent near veins; texture, brittle, papery; odour, characteristic; taste, astringent and slightly bitter.

**Constituents:** Flavonoids - Quercetin and Isorhamnetin.

**Properties and Action**

- **Rasa:** Tikta
- **Guna:** Guru
- **Virya:** Ushna
- **Vipaka:** Katu
- **Karma:** Amapachana, Kaphavatahara

**Dose:** 25-50 g. (Decoction).

**Therapeutic Uses:** Sotha, Vatavyadhi, Svasa, Kasa, Jvara, Udararoga, Sidhma, Adhyavata, Amavata, Vatarakta

**Sveta/Aparajita**

*Aparajita* consists of dried leaf of *Clitoria ternatea* Linn. (Fam. Fabaceae), a perennial twining climber common all over the tropical parts of country being cultivated and also found wild, growing over hedges and thickets.

**Synonyms:** Sanskrit: Girikarnika

**Taxonomic Classification**

- **Kingdom:** Plantae
- **(Unranked):** Angiosperms
- **(Unranked):** Eudicots
- **(Unranked):** Rosids
- **Order:** Fabales
- **Family:** Fabaceae
- **Genus:** Clitoria
- **Species:** *C. ternatea*
- **Binomial name:** *Clitoria ternatea* L

**Description**

**Macroscopic:** Drug generally occurs in the form of leaves and leaflets, rachis broken with or without intact leaflets; leaflet with small petiolule, ovate or elliptic oblong, rarely roundish, obtuse, entire, and glabrous or with a few short apprised hairs, sub coriaceous, base obtuse or acute; 2.5 to 5.0 cm long, 1.8 to 3.0 cm wide, yellowish-green; no odour or taste.

**Constituents:** Glycosides - Flavonal glycosides and Resin glycosides

**Properties and Action**

- **Rasa:** Katu, Tikta, Kashaya
- **Guna:** Laghu
- **Virya:** Shita
- **Vipaka:** Katu
- **Karma:** Medhya, Kanthya, Cakshusya, Pitta-upadravanashini, Tridoshashamaka, Visapaha, Garahaghi

**Therapeutic Uses:** Shula, Shotha, Ardhavabhedaka, Bhrama, Daha, Amadosha, Graha-Badha, Jvara, Kasa, Kushtha, Mutradosha, Raktatisara, Svasa, Unmada, Visha, Vrana, Vamana.

**Jivanti**

*Jivanti* consists of dried roots of *Leptadenia reticulata* W. & A. (Fam. Asclepiadaceae), a much branched twining shrub, distributed throughout the plains of India, along hedges.

**Synonyms:** Jivanti, Shakashrestha, Jivani

**Taxonomic classification**

- **Genus:** Leptadenia
- **Family:** Apocynaceae
- **Subfamily:** Asclepiadoideae
- **Tribe:** Ceropegieae
- **Subtribe:** Leptadeniinae. Also placed in: Asclepiadaceae

**Description**

**Macroscopic:** Roots cylindrical, 5 to 7 cm in length and 1 to 3 cm in thickness, surface light brown to greyish brown with longitudinal wrinkles; fracture, tough; fractured surface creamish and horny; odour and taste indistinct.

**Constituents:** Hentriacontanol, a- and b-amyrin, stigmasterol, b-sitosterol and flavonoids-iosmetin and luteolin.

**Properties and Action**

- **Rasa:** Madhura, Kashaya
- **Guna:** Laghu, Snigdha
- **Virya:** Shita
- **Vipaka:** Madhura
Karma: Rasayana, Balya, Cakshusya, Grahi, Vrsya, Bringhamana, Stanyajanana, Visaghna, Tridosahara

Therapeutic Uses: Atisara (Diarrhoea), Daha (Burning sensation), Jvara (Fever), Kshaya (Pthisis), Kasa (Cough), Sosha (Cachexia), Mukharoga (Disease of mouth), Nakrandhya (Night blindness), Netraroga (Diseases of the eye), Raktaipita (Bleeding disorder), Trishna (Thirst), Urhaksata (Pulmonary cavitation), Vrana (Ulcer)

Dose- Churna (Powder): 3 to 6 g.

Atirasa/Satavari

Satavari consists of tuberous roots of Asparagus recemusus Willd. (Fam. Liliaceae), an ascending, spinous much branched, perennial climber found throughout the country.

Synonyms: Sanskrit: Narayani, Vari, Abhiru, Atirasa

Scientific classification

Kingdom: Plantae
Clade: Angiosperms
Order: Asparagales
Family: Asparagaceae
Subfamily: Asparagoideae
Genus: Asparagus
Species: Asparagus racemosus Willd.

Description

Macroscopic: Root tuberous, 10 to 30 cm in length and 0.1 to 0.5 cm thick, tapering at both ends with longitudinal wrinkles; colour cream; taste, sweetish.

Constituents: Sugar, Glycosides, Saponin and Sitosterol.

Properties and Action

Rasa: Madhura, Tikta
Guna: Guru, Snigdha
Virya: Shita
Vipaka: Madhura
Karma: Sukrala, Balya, Hridya, Medhya, Pittahara, Rasayana, Varnya, Sukraja, Kaphavataghna, Vataharaa, Stanyakara, Netrya, Agnipushtikara


Dose- 3-6 g of the drug.

Shalaparni

Shalaparni consists of dried whole plant of Desmodium gangeticum DC. (Fam. Fabaceae), a nearly erect undershrub, 0.6 to 2 m high, growing wild almost throughout India in the plains and Western Ghats, and up to 1500 m in the north up to Sikkim.

Synonyms: Sanskrit: Sthira, Triparni, Vidarigandha, Ansumati

Scientific classification

Kingdom: Plantae
Phylum: Magnoliophyta
Class: Rosopsida
Order: Fabales
Family: Fabaceae
Genus: Desmodium
Species: Gangeticum Shalparni (L.) DC.

Description

Macroscopic: Root - Tap root, poorly developed, but lateral roots 15 to 30 cm long, and 0.1 to 0.8 cm thick, uniformly cylindrical with a number of branches; surface smooth bearing a number of transverse, light brown lenticels, bacterial nodules frequently present; light yellow; fracture fibrous; odour not characteristic; taste, sweetish and mucilaginous. Stem- Stem are slender, upto 1.0 cm in diameter, branched, somewhat angular, clothed with appressed grayish hairs, external surface brown, internal pale yellow; fracture, short; taste, slightly bitter.

Leaf - Leaf unifoliate, petiolate, stipulate, linear, oblong, acute or slightly acuminate, striate at the base, about 6 to 13 cm long and 3.5 to 7 cm broad, margins somewhat wavy, upper surface glabrous and green, lower surface pale and clothed with dense, soft, whitish appressed hairs.
Constituents: Alkaloid: flavonoids, desmocarpin; pterocarpan, desmodin, gangetin, gangetinin; others: 2-(N,N-dimethyl amino)acetophenone.

Properties and Action
Rasa: Tikta, Madhura
Guna: Guru, Snigdha
Virya: Ushna
Vipaka: Madhura
Karma: Balya, Bringhana, Mutrala, Rasayna, Tridoshahara, Vatahara, Vrishya

Therapeutic Uses: Arsha (Piles), Atisara (Diarrhoea), Chardi (Emesis), Jvara (Fever), Kasa (Cough), Krimi (Worm infestation), Kshata (Wound), Mutrakriccha (Dysuria), Prameha (Metabolic disorder), Santapa (Emotional stress), Sosha (Cachexia), Sotha (Inflammation), Sukradaurbalya (Semiais stress), Svasa (Asthma), Vataroga (Disease due to Vata dosa), Visham jvara (Intermittent fever), Visha vikara (Disorders due to poison).

Svetapunarnava
Synonyms: Sanskrit: Vrischiva
Scientific classification
Kingdom: Plantae
Order: Caryophyllales
Family: Nyctaginaceae
Genus: Boerhavia
Species: B. diffusa

Description
Macroscopic: Roots occur in small pieces of 5 to 7.5 cm in length and upto 2 cm in thickness; texture rough; lenticels dot like or slightly transversely elongated, arranged in transverse rows; colour brown, freshly cut surface creamish to light brown; odour and taste not distinctive.

Properties and Action
Rasa: Madhura, Tikta
Guna: Laghu, Ruksha
Virya: Ushna
Vipaka: Madhura
Karma: Kaphahara, Vatahara, Vishaghn, Pittashamaka, Agnidipaka, Jvarahara.


Dose: 5-15 g.

Raktapunarnava
Synonyms: Sanskrit: Sothaghni, Rakta puspa
Scientific classification
Kingdom: Plantae
Order: Caryophyllales
Family: Nyctaginaceae
Genus: Boerhavia
Species: B. diffusa

Description
Macroscopic: Root well developed, fairly long, somewhat tortuous, cylindrical, 0.2 -1.5 cm in dia.; yellowish-brown to brown; surface, rough due to minute longitudinal striations and root scars; fracture, short; odour, not distinct; taste, slightly bitter.

Constituents: Alkaloid, Hentriacontane, β-Sitosterol, Ursolic Acid.

Properties and Action
Rasa: Madhura, Katu, Tikta, Kashaya
Guna: Shita, Laghu, Ruksha, Sara
Virya: Ushna
Vipaka: Katu
Karma: Sophaharra, Dipana, Vatahara, Kaphaghna, Pittahara.

Therapeutic Uses: Sopha, Pandu, Hridroga, Kasa, Arsha, Vrana, Urahakshatasula, Sotha.

Dose: 1-3 g. of powder. 10-20 ml. (Fresh Juice).

A separate branch of Ayurveda called Rasayana Chikitsa/Jara Chikitsa have been
described in Ayurveda for their anti-ageing effects. The modern research has covered a lot of Phytochemical, Pharmacological, screening of most of these herbs but somehow anti-aging aspect of research still needs to be focused. This review article may help to some extent in focusing the future anti-aging research to these herbs.

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