

**ROLE OF MEDICINAL PLANTS IN GERIATRIC DISORDERS WSR TO AYURVEDIC
DRUGS AND ITS AUTHENTICITY****Dr. Jignesh Kevalia¹, Dr. Madhavi Rabadia², Dr. Vasavdutta Kothari^{3*}, Dr. Kalpu Kotecha⁴, Sejalba Chauhan⁵**¹*Assistant Professor, Dept. of Pharmacognosy, Institute of Teaching and Research in Ayurveda, Jamnagar, Gujarat.²Assistant Professor, Dept. of Dravyaguna, Institute of Teaching and Research in Ayurveda, Jamnagar, Gujarat.³Assistant Professor, Dept. of Rasashastra and Bhaishajya Kalpana, Institute of Teaching and Research in Ayurveda, Jamnagar, Gujarat.⁴Assistant Professor, Pharmacology Dept., Institute of Teaching and Research in Ayurveda, Jamnagar, Gujarat.⁵Assistant Professor, RD Gardy College, Rajkot, Gujarat.***Corresponding Author: Dr. Vasavdutta Kothari**Assistant Professor, Dept. of Rasashastra and Bhaishajya Kalpana, Institute of Teaching and Research in Ayurveda, Jamnagar, Gujarat. DOI: <https://doi.org/10.5281/zenodo.21702668>**How to cite this Article:** Dr. Jignesh Kevalia¹, Dr. Madhavi Rabadia², Dr. Vasavdutta Kothari^{3*}, Dr. Kalpu Kotecha⁴, Sejalba Chauhan⁵ (2026). Role Of Medicinal Plants In Geriatric Disorders Wsr To Ayurvedic Drugs And Its Authenticity. European Journal of Pharmaceutical and Medical Research, 13(8), 337-346.

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ABSTRACT

Life span is increasing, gradually and so the geriatric population is also rising. With this comes the conditions and diseases of old age like dementia, hypertension, diabetes, osteoarthritis etc. Plants or herbs play an important role in maintaining overall health of aged people or to cure various common and chronic diseases chiefly termed as geriatric diseases. This study gives a comprehensive overview and also gives anatomical authenticity of six drugs namely Parsikayavani, Candrasura, Eranda, Atmagupta, Methikaa and Shankpushpi. The parameters such as their biological source, habit, habitat, plant description and powder microscopy also have been presented.

KEYWORDS: Atmagupta, Candrasura, Eranda, Methikaa, Parsikayavani, Shankpushpi, Geriatric diseases.**INTRODUCTION**

Population is rising day by day globally and so is the life span of an individual too. As per the WHO report or estimation, by 2050 the population of geriatric people will double to 210 crores from current number of 140 crores.

Ageing impact causes gradual decrease in physical and mental capacity, that leads to risks of diseases and death at the end, apart from the biological changes ageing is often connected with life transition such as work-life balance, emotions, relocation, etc.

Due to genetical changes on ageing, several geriatric issues arise including life style disorders like diabetes, hypertension and others e.g. osteoarthritis, pulmonary diseases, cataracts, dementia, etc.

Plants or herbs play major role in maintaining overall health of aged people or to cure various common and chronic diseases mainly termed as geriatric diseases.

The present study reveals a comprehensive literature and examinations of the medicinal plants used in treating geriatric diseases.

MATERIALS AND METHOD

The data compiles from the various standard and authenticated books.^[1-5]

However, the anatomical features of six drugs namely Parsikayavani, Candrasura, Eranda, Atmagupta, Methikaa and Shankpushpi were studied at Pharmacognosy department, Institute of Teaching and Research in Ayurveda – Pharmacy, Jamnagar for proper authentication.

The drugs were collected from different zones, dried and studied macroscopically and microscopically.

The present study documented around 15 drugs commonly used to treat various geriatric diseases including parameters such as their biological source, habit, habitat, plant description and powder microscopy.

DISCUSSION AND RESULT

Following is the list of plants which are most commonly used in the geriatric treatment with their morphological and anatomical identification methodology.

Different parts are in use from different species to treat different diseases that is commonly found and observed in aged people like diabetes, hypertension, arthritis, etc.

Below are the tables that gives detailed information of plants used in geriatrics specifically divided in 4 major groups.

Table no. 1: Morphological description of plants used in geriatrics.

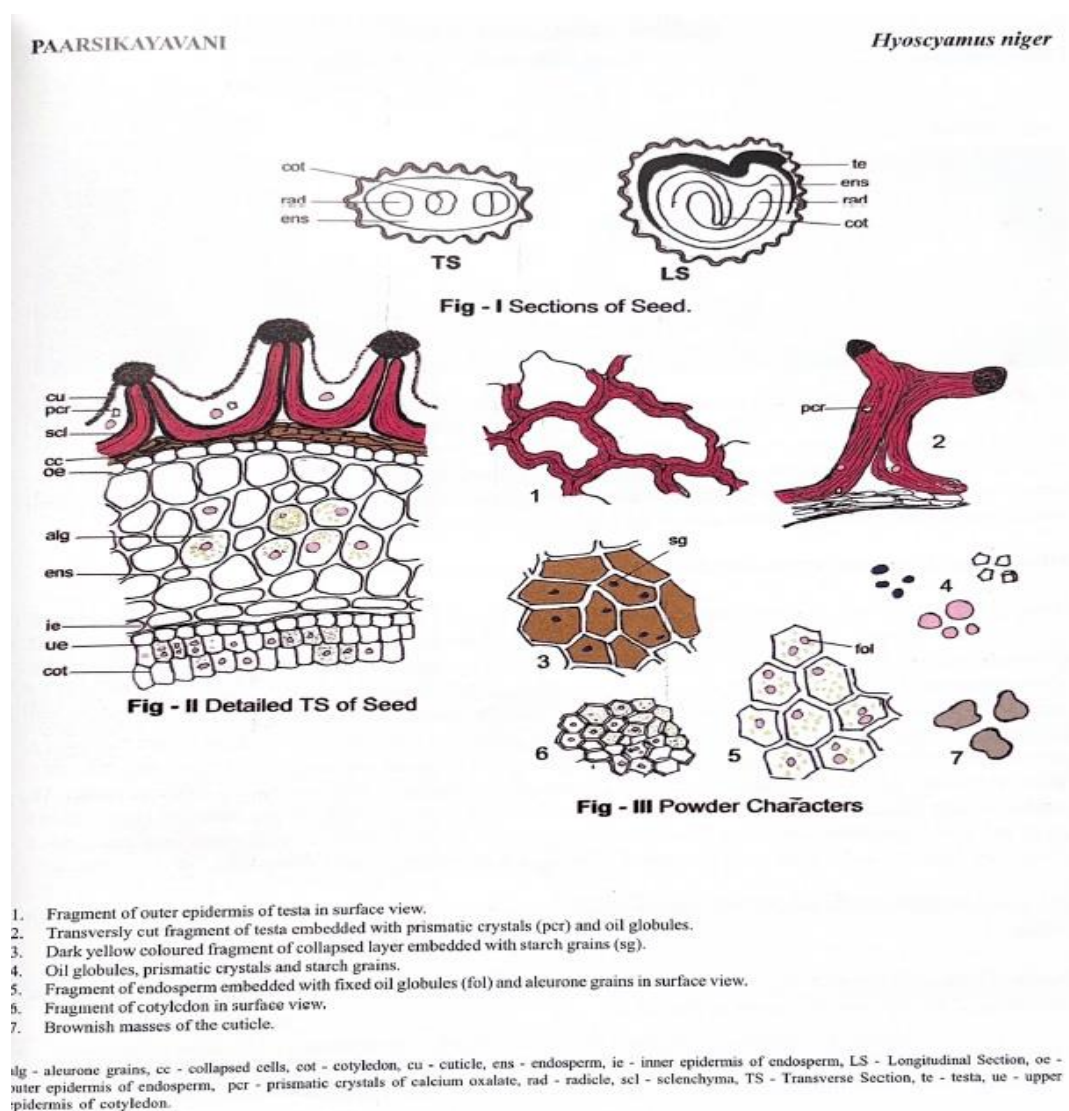
No.	Name of Drug with Latin name	Habit	Habitat	Salient Features
1.	<i>Mandookparni</i> <i>Centella asiatica</i>	A prostrate herb	Found all over	Tap root with renal shaped leaf and crenate margin
2.	<i>Meshashringi</i> <i>Gymnema sylvestre</i>	A perennial climber	Cultivated all over	Stem woody, leaf elliptic or ovate, flowers yellow in cluster
3.	<i>Parsikyavani</i> <i>Hyoscyamus niger</i>	A small shrub (biennial)	Found most in southern India	Leaves feathery, surface of seed found with honey comb like appearance
4.	<i>Jivanti</i> <i>Leptadenia reticulata</i>	A perennial climber	Cultivated throughout India	Bark corky, greenish yellow flower, fruits – small follicles and red when matured
5.	<i>Shankhpushpi</i> <i>Convolvulus microphyllus</i>	A prostrate herb	Found all over India	Plant hairy, Leaves linear to lanceolate, hestate; flower solitary, white to pink colour flowers
6.	<i>Agastaya</i> <i>Sesbania grandiflora</i>	A small tree	Cultivated throughout India	Papilionaceous flower with white to pink in colour
7.	<i>Arjuna</i> <i>Terminalia arjuna</i>	A large tree	Cultivated throughout India	Leaf with gland dotted at the base, bark pinkish, fruit starshaped
8.	<i>Asana</i> <i>Pterocarpus marsupium</i>	A small tree	In western ghats and central parts of India	Stem (heartwood) reddish in colour
9.	<i>Shigru</i> <i>Moringa oleifera</i>	Medium sized tree	Found all over India	Leaf – Tripinnate, impairipinnate, flowers white, fruits legumes, seeds winged
10.	<i>Twak</i> <i>Cinnamomum zeylanicum</i>	Medium sized tree	Cultivated in Southern India	Bark greyish, rough, pungent, curved to single quilled
11.	<i>Kapikachhu</i> <i>Mucuna pruriens</i>	Perennial woody climber	Found throughout India	Fruits hairy, irritating, seeds patchy black and white dark in colour
12.	<i>Jatiphala</i> <i>Myristica fragrans</i>	Small tree	Found in Southern India	Kernel rattles due to detachment of testa
13.	<i>Eranda</i> <i>Ricinus communis</i>	Woody shrub or a small tree	Cultivated throughout India also found wild	Leaves deeply 5-11 lobed giving appearance of palmately compound with long petiole, fruits regma
14.	<i>Methikaa</i> <i>Trigonella foenum-graceum</i>	A herb	Cultivated throughout India	Leaves tri-foliolate, seeds yellowish in colour
15.	<i>Chandrasura</i> <i>Lepidium sativum</i>	A herb	Cultivated most Rajasthan, UP, Gujarat, MP and Maharashtra	Leaves are arranged alternately along the stem, a small oval shaped reddish-brown seed with mucilaginous in taste

Table NO. 2: Anatomical characteristics of plants used in geriatrics.

No.	Name of Drug	Anatomical Characteristics
1.	<i>Mandukparni</i>	Simple multicellular trichomes + glandular trichomes, annular & reticulated vessels, cluster crystals, ranunculaceous stomata with striated cuticle
2.	<i>Meshashringi</i>	Trichomes simple & glandular; laticiferous vessels embedded with granular contents, annular vessels, anomocytic & actinocytic stomata with striated cuticle
3.	<i>Parsikyavani</i> *	Simple and club shaped clavate glandular trichomes, prismatic crystals, annular vessels, anisocytic stomata, simple starch grains
4.	<i>Jivanti</i>	Laticiferous vessel, annular, spiral & pitted vessels, cluster crystals
5.	<i>Shankhpushpi</i> *	Sessile glandular trichomes; annular, spiral and reticulated vessels, cluster crystals, presence of cicatrix; paracytic and anisocytic stomata

6.	<i>Agastaya</i>	Radially and tangentially cut medullary rays, rhytidoma filled with dark brown contents, stone cells, cerentenchyma associated with parenchyma, septate fibres
7.	<i>Arjuna</i>	Abundant cluster and rosette crystals, septate fibres, idioblast, brown contents, starch grains
8.	<i>Asana</i>	Idioblast with prismatic crystals, dark brown masses of tannin contents, stone cells and sclereids, dark brown contents
9.	<i>Shigru</i>	Abundant stone cells and sclereids, cluster and prismatic crystals, thick-walled septate fibres, stone cells embedded with crystals
10.	<i>Twak</i>	Oil cells, radially and tangentially cut medullary rays, starch grains, stone cells and sclereids
11.	<i>Kapikachhu*</i>	Palisade layer of testa, starch grains, dumbbell shaped sub-epidermis, stone cells and sclereids, spiral and annular vessels, tracheids
12.	<i>Jatiphala</i>	Simple and compound starch grains, cluster and prismatic crystals, pitted and spiral vessels, oil cells attached with inner perisperm cells, endosperm cells filled with starch grains
13.	<i>Eranda*</i>	Spiral and annular vessels, plenty spherical crystalline masses, abundant green aleurone grains
14.	<i>Methika*</i>	Column cells of testa in sectional view; endosperm cells embedded with mucilage and aleurone grains; wavy epidermal cells of endosperm
15.	<i>Chandrasura*</i>	Epidermal cells embedded with mucilage, rows of mucilage fragments from epidermal cell, palisade cells embedded with aleurone grains

* these were studied and authenticated microscopically and their photographs are given herewith-



ERANDABEEJA

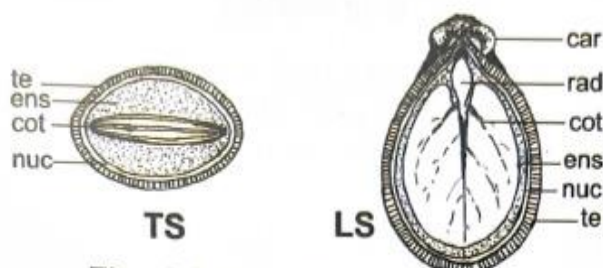
Ricinus communis

Fig - I Sections of Seed

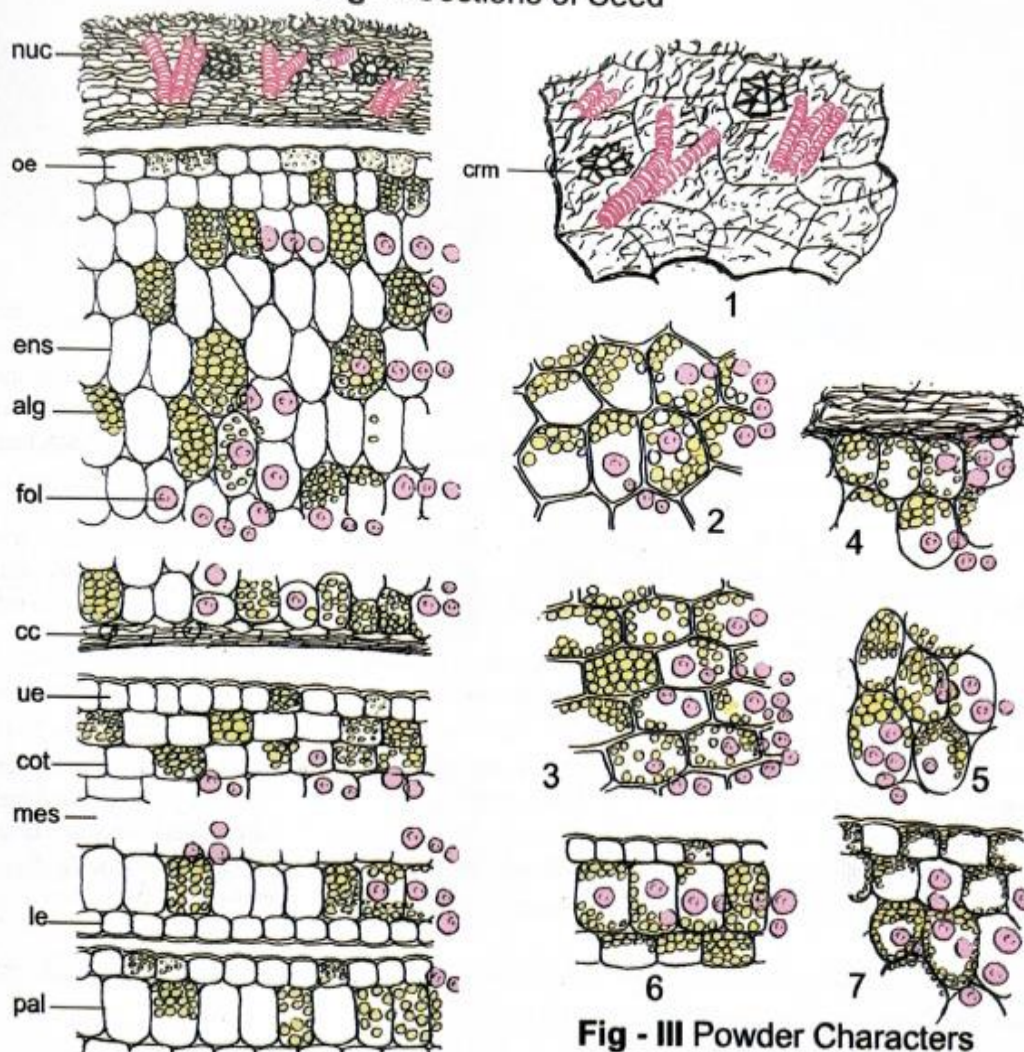


Fig - II Detailed TS of Kernel

Fig - III Powder Characters

1. Fragment of nucellus in surface view embedded with spiral and annular vessels and spherical crystalline masses (crm).
2. Fragment of endosperm embedded with fixed oil globules and aleurone grains.
3. Fragment of cotyledon in surface view embedded with oil globules and aleurone grains.
4. Transversely cut fragment of endosperm and nucellus.
5. Fragment of endosperm in surface view.
6. Transversely cut fragment of cotyledon showing lower epidermis and palisade like underlined cells.
7. Transversely cut fragment of cotyledon showing upper epidermis and underlined mesophyll cells.

alg - aleurone grains, car - caruncle, cc - collapsed cells, cot - cotyledon, ens - endosperm, fol - fixed oil globule, le - lower epidermis of cotyledon, LS - Longitudinal Section, mes - mesophyll, nuc - nucellus, oe - outer epidermis of endosperm, pal - palisade, rad - radicle, te - testa, TS - Transverse Section, ue - upper epidermis of cotyledon.

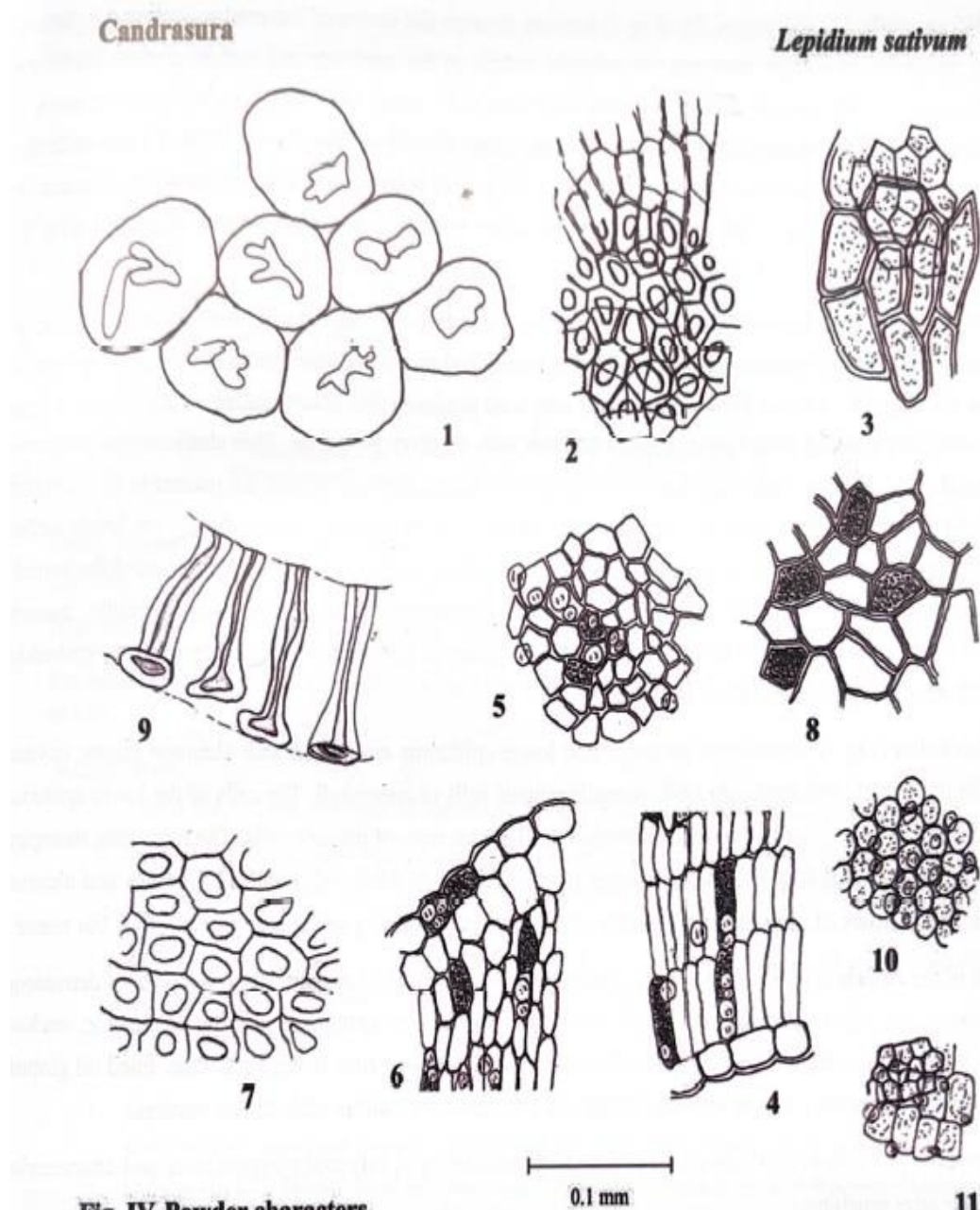


Fig. IV. Powder characters

1. Epidermal cells in surface view embedded with mucilage.
2. Fragment of thick walled, hexagonal cells of subepidermis in surface view, overlapping with collapsed layer and inner epidermis of testa.
3. Endosperm cells in surface view overlapping with inner epidermal cells of testa.
4. Transversely cut fragment of cotyledon showing lower epidermis and underlined palisade cells embedded with aleurone grains and fixed oil globules.
5. Mesophyll cells in surface view embedded with fixed oil globules and aleurone grains.
6. Transversely cut fragment of cotyledon showing upper epidermis and underlined mesophyll cells.
7. Thick walled cells of subepidermis of testa in surface view.
8. Epidermal cells of cotyledon embedded with aleurone grains.
9. A row of mucilage fragments from the epidermal cells.
10. Periblem cells of radicle in surface view.
11. Overlapping fragment of dermatogen and underlined cells of the radicle in surface view.

ATMAGUPTA

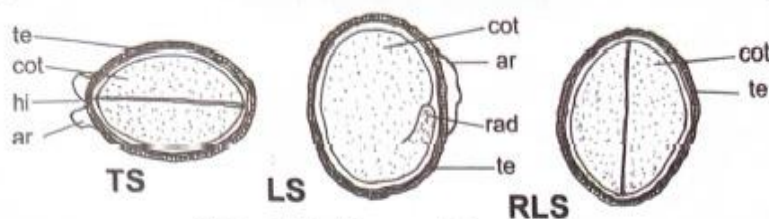
Mucuna pruriens

Fig - I Sections of Seed

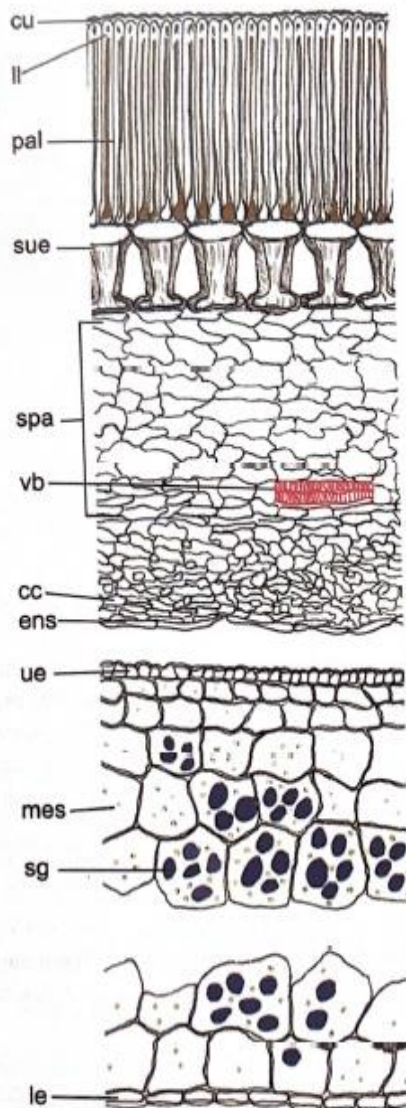


Fig - II Detailed TS of Seed

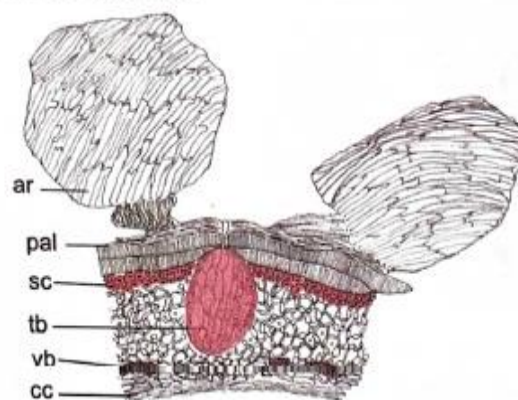


Fig - III Detailed TS passing through Hilum

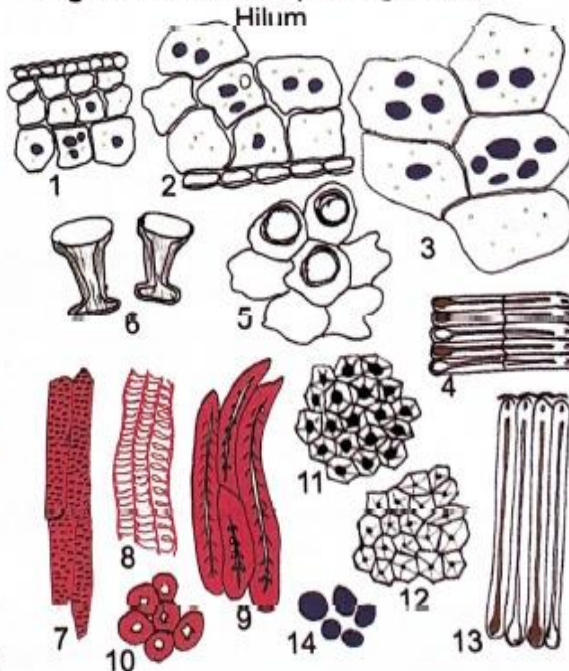


Fig - IV Powder Characters

1. Transversely cut fragment of cotyledon showing upper epidermis and underlined mesophyll cells.
2. Transversely cut fragment of cotyledon showing lower epidermis and underlined mesophyll cells.
3. Mesophyll cells embedded with starch and aleurone grains.
4. Transversely cut fragment of palisade cells of hilar region.
5. Spool shaped cells of subepidermis in surface view.
6. Transversely cut cells of subepidermis.
7. Tracheids from the hilar region.
8. Spiral and annular vessels.
9. Groups of sclereids from the hilar region.
10. Sclereids from hilar region in surface view.
11. Palisade cells in surface view seen from below.
12. Palisade cells in surface view seen from above.
13. Transversely cut fragment of palisade layer of testa.
14. Starch grains.

ar - aril, cc - collapsed cells, cu - cuticle, cot - cotyledon, ens - endosperm, hi - hilum, le - lower epidermis of cotyledon, ll - linea lucida, LS - Longitudinal Section, mes - mesophyll, pal - palisade, rad - radicle, RLS - Radial Longitudinal Section, sc - sclereids, sg - starch grains, spa - spongy parenchyma, sue - subepidermis, th - tracheidal bar, te - testa, TS - Transverse Section, ue - upper epidermis of cotyledon, vb - vascular bundle.

METHIKAA

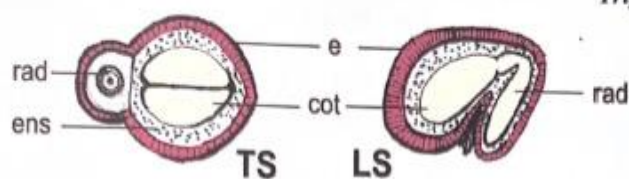
Trigonella foenum - graecum

Fig - I Sections of Seed

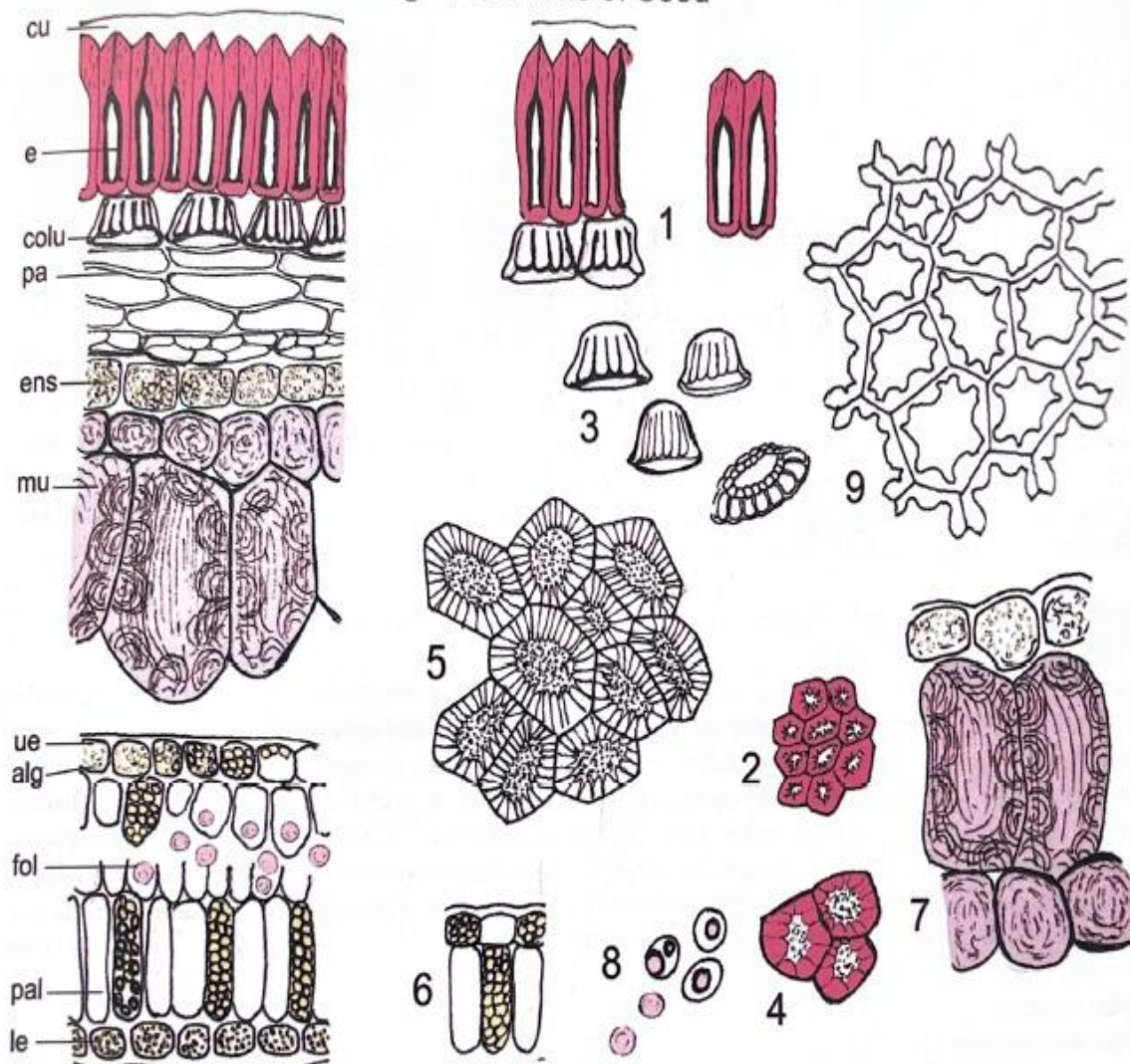
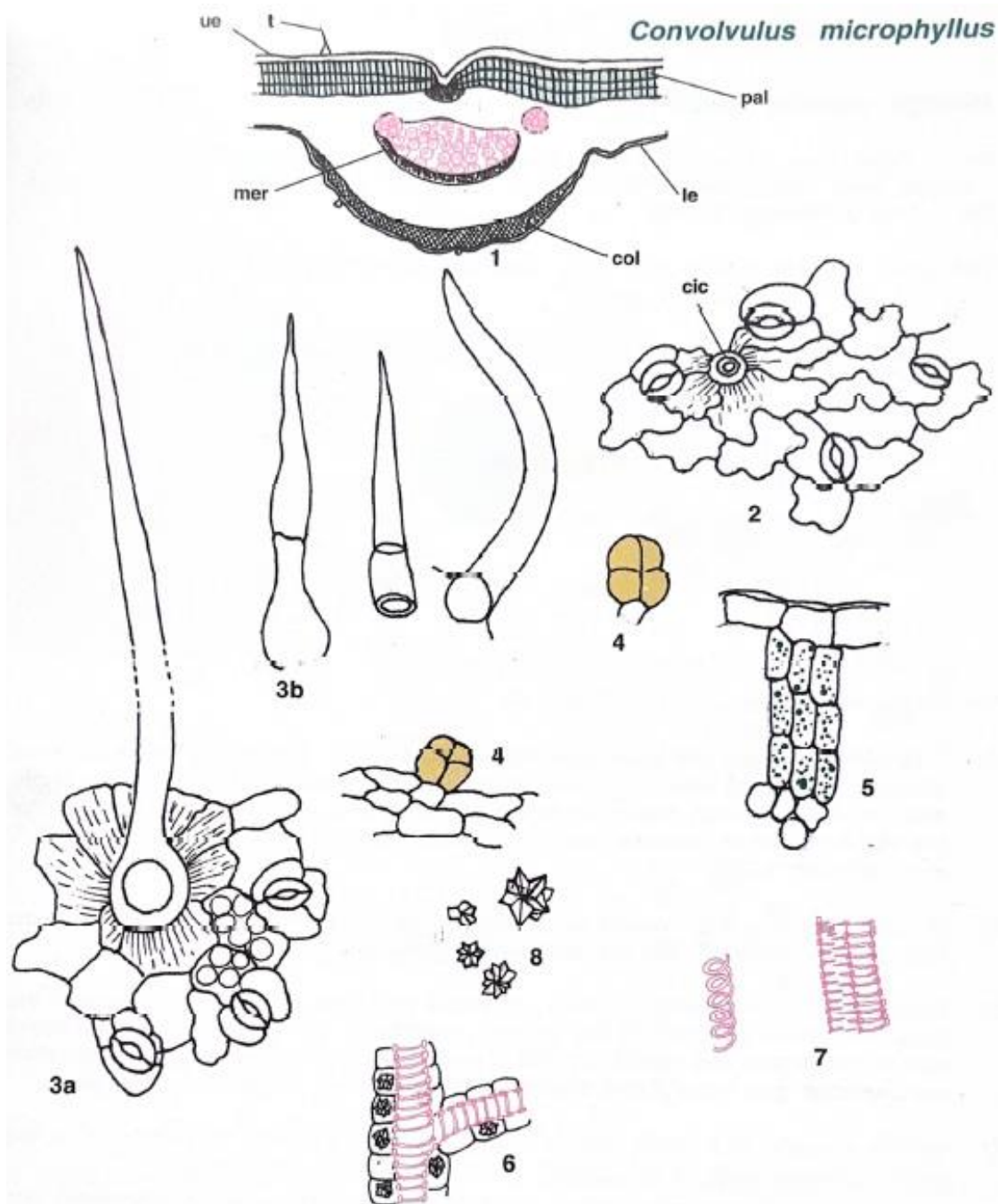


Fig - II Detailed TS of Seed

Fig - III Powder Characters

1. Epidermis and subepidermis in sectional view, showing palisade and column cells.
2. Epidermis of testa in surface view seen from above.
3. Column cells in sectional view.
4. Epidermis of testa in surface view seen from below.
5. Subepidermis of testa in surface view seen from below.
6. Fragment of cotyledon in sectional view showing lower epidermis and palisade cells.
7. Fragment of endosperm in sectional view embedded with mucilage and aleurone grains.
8. Scattered oil globules.
9. Epidermis of endosperm in surface view.

alg - aleurone grains, colu - column cells of subepidermis, cot - cotyledon, cu - cuticle, e - epidermis, ens - endosperm, fol - fixed oil globules, le - lower endodermis of cotyledon, LS - Longitudinal Section, mu - mucilage, pa - parenchyma, pal - palisade layer, rad - radicle, TS - Transverse Section, ue - upper endodermis of cotyledon.



- 1) Diagrammatic TS of leaf passing through the midrib; upper (ue) and lower (le) epidermis, palisade (pal), collenchymatous tissue (col), trichome (t) and meristele (mer).
- 2) Upper epidermis in surface view showing stomata, cicatrix (cic) and palisade cells underneath the upper epidermis.
- 3) Simple trichomes (a) long and unicellular, (b) short and bicellular.
- 4) Glandular trichomes.
- 5) Transversely cut fragments of lamina showing palisade cells.
- 6) Fragment of xylem vessel associated with idioblast containing cluster crystals of calcium oxalate.
- 7) Longitudinally cut fragment of annular, spiral and reticulate vessels.
- 8) Cluster crystals of calcium oxalate.

Table No. 3: Medicinal constituents of listed plants used in geriatrics.

No.	Name of Drug	Active medicinal compounds
1.	<i>Mandukparni</i>	Asiaticoside, Asiatic acid, madecassoside as major glycosides, flavonoids, essential oils, etc.
2.	<i>Meshashringi</i>	Gymnemic acid, gurmardin, gymnemagenin, saponin, flavonoids, lupeol, glycoside, fatty acids and alkaloids
3.	<i>Parsikyavani</i>	Hyscimine, thymol, flavonoid, tropane, tannin, terpenes, etc.
4.	<i>Jivanti</i>	Tri-terpenoids, alpha amyrin, beta amyrin, stigmasterols, betasosterols, flavonoids like epigenin, diosmetin, etc.
5.	<i>Shankpushpi</i>	Alkaloids, glycosides, phenolic compounds like scopoletin, caempferol, steroids, etc.
6.	<i>Agastaya</i>	Alkaloids, flavonoids, glycosides, tannins, saponin, steroids, carbohydrates, vitamin A, C and B -complex
7.	<i>Arjuna</i>	Polyphenols like gallic acid, ellagic acid, flavonoids, tri-terpenoids, saponins like arjunic acid and arjunoside, minerals like calcium, magnesium, etc.
8.	<i>Asana</i>	Alkaloids, resin, pterostilbene, epicatechin, marsupin, kinotannic acid, kinored gallic acid, pseudo-deptigenin, etc.
9.	<i>Shigru</i>	Rich sources of vitamins, minerals, amino acids, oleic acid, palmitic acids like fatty acids, alkaloids like moringine, flavonoids, iso-thiocyanates, etc.
10.	<i>Twak</i>	Cinnamaldehyde, essential oils like eugenol, pinene, resinous compound, cinnamic acid, terpenoids like linalool, caryophyllene, etc.
11.	<i>Kapikachhu</i>	L – dopa, dopamine, alkaloids like mucunine, mucunadine, prurienine, tryptamine, serotonin, nicotine fatty acid like palmitic, stearic, linoleic acids, etc.
12.	<i>Jatiphala</i>	Myristicine, saffrol, limonene, terpinene, fixed oil myristin, myristic acid, minerals, carbohydrates like starch, etc.
13.	<i>Eranda</i>	Toxic protein ricin, alkaloids ricinine, flavonoids, phenolic compounds like quercetin, gallic acid, fixed oil like ricinoleic acid, etc.
14.	<i>Methika</i>	Steroidal sapogenin like diosgenin, trigonelline, flavonoids, saponins, galactomannans, polyphenols, dietary fibres, minerals, proteins, vitamins, etc.
15.	<i>Chandrasura</i>	Calcium, iron, folic acid, proteins, carbohydrates, fats and oils like linoleic, linolenic acids, vitamins, glycosides like flavonoids, etc.

Table No. 4: Medicinal uses of listed plants used in geriatrics.

No.	Name of Drugs	Part used	Medicinal Uses
1.	<i>Mandookparni</i>	Whole plant	Medhya Rasayana, di-uretic, nervine tonic, anti-stress, immune-modulator
2.	<i>Meshashringi</i>	Whole plant	In Prameha,
3.	<i>Parsikyavani</i>	Seeds	Anti-spasmodic, sedative, tranquilizer and anodyne
4.	<i>Jivanti</i>	Roots	Jivaniya, anti-bacterial, etc.
5.	<i>Shankpushpi</i>	Whole plant	Medhya Rasayana, anti-ulcerogenic, hypotensive, etc.
6.	<i>Agastaya</i>	Flowers, leaves, bark, fruits, whole plant	Cataracts, anaemia, liver disorders, etc.
7.	<i>Arjuna</i>	Bark	Cardiac tonic, bone related issues, wound healer
8.	<i>Asana</i>	Heartwood	Anti-diabetic
9.	<i>Shigru</i>	Leaves, fruit, roots	General debility, Vedana sthapan, sandhivat, sothhara
10.	<i>Twak</i>	Bark	Digestive, diabetes, etc.
11.	<i>Kapikachhu</i>	Seeds	Kampvat as anti-parkinsonian, rasayana, epilepsy, etc.
12.	<i>Jatiphala</i>	Seed	Tranquilizer, in insomnia, digestive,
13.	<i>Eranda</i>	Seeds, Seed oil, leaves, roots	Laxative, purgative, rheumatism, arthritis,
14.	<i>Methika</i>	Seeds	Diabetes, digestive, vaathara
15.	<i>Chandrasura</i>	Seeds	Source of calcium, arthritis, rheumatism, analgesic, anti-inflammatory, laxative, diuretic, hepato-protective, etc.

CONCLUSION

The above study highlighted the use of 15 medicinal drugs for the management in geriatric diseases along with their external identification, and anatomical evaluation including their clinical properties.

This will help out to find the better geographical sources of a particular herb used as medicine as well as in authentication of specific drug for preparing genuine medicine to cure ageing related problems.

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