IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Review On Prepration Of Herbal Monographs And Medicinal Plants

***Ms.PoojaVijayDhoke,Mr.Yogiraj.P.Muley,Dr.Sunil.S.Jaybhye,Ms.Nikita.V.Pungle**

Institute of Pharmacy,Badnapur,Jalna 431202

Dr.Babasaheb Ambedkar Technolgical University,Lonere,Raigad MS

1.Abstract

Ayurveda is based on Tridosha, which means the theory of three elements of the universe. Vata, Pitta, and Kapha are the three doshas. The meaning of Vata is Wind, Pitta means Bile and Kapha means Phlegm. Those elements correspond to the tridosha that exists in the world, namely Air, Fire, and Water. Shaddharana Churna is a polyherbal Ayurvedic formulation that has been described in the Samhitas like Sushrut Samhita, Ashtang Sangraham, Ashtang Hridayam, Madhava Nidana, Vrinda Madhava, Chakra Datta, Vangasena Samhita, Gada nigraha, Yoga Ratnakar, Brihat Nighantu Ratnakar, Yoga Chintamani, and Bhaishajya Ratnavali. Shaddharana Churna contains six drugs of equal quantities. They are Chitraka, Indrayava, Patha, Katuka, Ativisha, and Abhaya / Haritaki. Plants are the exclusive source of drugs for the treatment of many diseases. Each monograph integrates botanical identification (macroscopic & microscopic), pharmacognostic characters, physicochemical constants, phytochemical marker identification, extraction methods, standardized assay procedures (TLC/HPLC/UV), recommended tests for contaminants (heavy metals, pesticides, aflatoxins, microbial limits), and a summary of reported pharmacological actions and safety data. The work presents validated laboratory procedures for preparing hydroalcoholic and aqueous extracts, provides marker-based standardization targets (e.g., guggulsterones for guggul; bacosides for brahmi; shatavarin-type saponins for shatavari), and proposes stability, storage, and labelling requirements to meet regulatory and clinical needs.(1)

1.Introduction

Indian traditional medicinal system is Ayurveda, approximately dates back to three thousand years. Ayurveda, the science of life, involves the incorporation of universal 5 elemental forces- namely jala (Water), prithvi (Earth), vayu (Air), aakash (space, ether) and Agni (Fire). According to Ayurveda, these 5 elemental forces are the fundamentals on which the body and the universe sustain their harmony between in each. They are the structural units that constitute the universe as well as the human body. Therefore whatever is the

imbalance in the body in terms of excess or deficiency, Ayurveda has explained through various stipulated scientific guidelines to manage the excess or deficiency by using the universal elements in terms of food or medication.

Herbal medicines continue to play a vital role in global health care, especially in traditional systems such as Ayurveda, Siddha, and Unani, where plants are used not only for disease management but also for health promotion and prevention. According to the World Health Organization (WHO), more than 80% of the world's population relies on plant-based remedies for primary health needs. Despite their growing popularity, one of the major challenges in herbal medicine research is the lack of standardized, scientifically validated monographs that define the quality, purity, identity, and safety of medicinal plant materials. Standardization is essential for ensuring consistent therapeutic efficacy, minimizing adulteration, and improving regulatory acceptance.

The present study focuses on developing a comprehensive herbal monograph for three widely used and pharmacologically important Ayurvedic botanicals: Guggul (Commiphora mukul), Brahmi (Bacopa monnieri), and Shatavari (Asparagus racemosus). These herbs hold a long history of traditional use and are extensively documented in classical Ayurvedic texts such as Charaka Samhita, Sushruta Samhita, and Bhavaprakasha, where they are described for various therapeutic action their use in evidence-based herbal formulation.Modern scientific research has also identified several phytochemical markers responsible for their pharmacological activities, further supporting.(2)

2. Importance of Ayurvedic Herbal Drugs

1. Natural Origin:

Ayurvedic medicienes come. Prom plants and come from plants and natural Sources, making them gentler on the body compared to Synthetic drugs

2. Holistic Healing:

These herbs not only treat diseases but also keep the mind, body, and sprit bajared by maintaining the tridosha (vata, pitta, Kapha).

3. Fewer Side effects:

When used correctly herbal drugs produce. very mild side effects and are safe for long-term use

4. Preventive & Curative:

Ayurveda focuses on preventing diseases as Hell as treating them, and herbs. play a major role in both.

5. Rich Traditional Knowledge:

The use of these herbal is supported by thousands of years of traditional wisdom documented in classicals texts like charaka and Sushruta samhita.

6. Wide Range of Uses:

Ayurvedic herbs help mange many health problems such as digestive issues, Skin disorders, stress, diabetes, and immunity.

7. Eco-Friendly & Sustainable:

Being plant-based, herbal medicienes support biodiversity and sustainable practices.

8. Foundations For Modern Drugs:

Many modern medicines have been developed From Ayurvedic herbs (eig.Rauwolfia sepentina-Reserpine.) (3)

3. Objective of The Study

1. This study aims to connect ancient Ayurvedic knowledge with today's scientific research,helping to prove its effectiveness.
2. The goal is to check how well herbal medicines work and ensure they are safe For patients.
3. This includes testing herbs Scientifically to herbs scientifically to maintain quality, identity, purity, and consistency.
4. Collecting and recording traditional information ensure it is not lost and can be used for future research.
5. The aim is to support the use of Ayurveda clongside modern medicine for better,holistic patient care. (4)

4. Monograph - Meaning and Significance

1. Meaning Of Monograph:

A Mongraph is a detailed written document that describes a drugs identity, quality Standards, purity tests, and scientific information It seves as an official reference for that drugs.

2. Ensure Authentic Identifications:

It helps correctly identify the herbal drug as Confusion or Substitution. So that there is no with the wrong plants.

3. Defines Qucuity And Purity Standards:

The monograph lists tests and parameters. tests that ensure the drugs is clean, pure, and safe for use

4. Helps In Regulatory Approval:

Monographs are required for including herbal drugs in pharmacopoeias and for Approval by regulatory bodies like AYUSH, WHO etc. (5)

5. General Format of Herbal Drug Monographs:

Each Herbal Monograph Typically Includes:

1. Botanical Name:

This is the scientific name of a plant. It is given in Latin and is used all over the world so that the plant can be identified correctly without confusion.

Example: Tulsi → Ocimum sanctum

2. Family:

Family means the plant group to which a plant belongs. Plants with similar characteristics are placed in the same family.

Example: Tulsi belongs to the Lamiaceae family.

3. Synonyms:

Synonyms are the other names of the same plant. These may be traditional names, local names, or names used in different languages.

Example:Tulsi is also called Holy Basil.

4. Parts Used:

This tells us which parts of the plant are used for medicine or treatment.

Examples of parts used:Leaves ,Roots,Bark,Seeds,Fruits,Flowers

5. Description:

This is a simple explanation of the plant's appearance, such as:Size,Color, Smell

6. Microscopy

Microscopy means studying the plant parts under a microscope.

It shows the internal structure of the plant, which helps confirm its purity and originality.

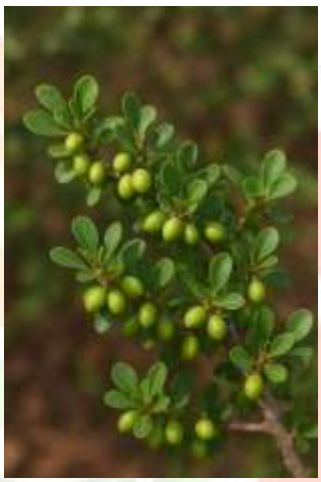
Example: Examining cells, tissues, vessels, and fibers.

7. Chemical Constituents

These are the important natural chemicals present in the plant that give it medicinal power.Examples:Alkaloids,Flavonoids,Tannins,Glycosides,Essential oils

6.Detailed Monograph Of 3 Harbal Drugs:

1).GUGGUL (Commiphora wightii / Commiphora mukul):



Ayurvedic Name: Guggulu Family:

Burseraceae

Plant Part Used: Oleogum resin (Niryāsa)

Synonyms: Mahishaaksha, Devadhupa, Pura, Palankasha

1. Botanical Description:

Habitat: Grows in arid regions of India—Rajasthan, Gujarat, Madhya Pradesh.

Plant: Small, branching, thorny shrub (3–4 m tall).

Leaves: 1–3 foliolate, ovate.

Flowers: Small, reddish-pink, unisexual.

Resin: Pale yellow to brown, aromatic oleo-gum obtained by tapping the bark.

2. Ayurvedic Properties (Rasa–Guna–Virya–Vipaka–Prabhava):

Attribute Description

Rasa (Taste) Tikta (bitter), Katu (pungent)

Guna (Qualities) Laghu (light), Ruksha (dry)

Virya (Potency) Ushna (hot) Vipaka (Post-

digestive effect) Katu

Prabhava (Special action) Lekhana (scraping of toxins/fats) (6)

3. Ayurvedic Therapeutic Uses:

Guggul is one of the most important Yogavahi (bio-enhancers) in Ayurveda. Indications:

Medoroga (obesity)

Sandhivata (osteoarthritis)

Amavata (rheumatoid arthritis)

Kustha (skin diseases)

Arsha (hemorrhoids)

Shotha (inflammation and edema)

Udara roga (abdominal disorders)

Hyperlipidemia

Atherosclerosis

Important Classical Guggul Kalpas:

Yogaraja Guggulu

Triphala Guggulu

Kaishora Guggulu

Maha Yogaraja Guggulu

Punarnava Guggulu

Chandraprabha Vati (contains guggul)

4. Pharmacognosy

Macroscopic Characters

Resin in irregular lumps, aromatic, sticky, yellowish brown.

Bitter taste with aromatic gum-like odor.

Microscopy

Oil globules and gum matrix.

Plant debris and essential oil canals. (7)

5. Phytochemistry:

Major bioactive constituents: Guggulsterones (E & Z)

Primary active compounds responsible for hypolipidemic activity.

Other Constituents

Guggulsterols

Guggulipid

Myrrhanol

A Commipheric acid

Essential oils (myrcene, dimyrcene, limonene) Polysaccharides and gums (8)

6. Pharmacological Activities (Modern Research):

a.Hypolipidemic Activity Reduces LDL, VLDL, triglycerides

Enhances thyroid activity → boosts metabolism

b.Anti-inflammatory & Analgesic

Comparable effects to NSAIDs in arthritis models.

c.Anti-arthritic

Used widely for osteoarthritis and rheumatoid arthritis.

d.Antioxidant & Detoxifying

Neutralizes free radicals, supports liver detoxification.

e.Anti-obesity

Promotes fat mobilization (Lekhana property).

f.Antimicrobial & Anti-acne

Active against gram-positive bacteria.

7. Dose:

Form Dose

Guggul resin churna 1-3 g per day

Guggul-based tablets/vatis 250-500 mg twice daily

Pure Guggulipid extract 25 mg guggulsterone, twice daily (Under medical supervision) (9)

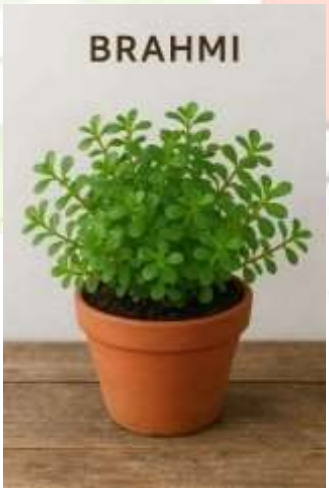
8. Toxicity & Contraindications:

Avoid in hyperthyroidism (may increase thyroid hormones). Not

recommended during pregnancy & lactation.

High doses may cause gastric irritation.(10)

2)Brahmi (Bacopa Monnieri):



1. Introduction:

Brahmi, scientifically known as Bacopa monnieri (L.) Pennell, is a well-known Ayurvedic medicinal plant used since ancient times as a brain tonic, memory enhancer, and nerve rejuvenator. It is one of the key herbs in Ayurvedic formulations for promoting intelligence (Medhya Rasayana)

2. Botanical Classification:

Category Details

Kingdom Plantae

Division Angiosperms Class

Dicotyledons Order Lamiales

Family Plantaginaceae

(formerly Scrophulariaceae)

Genus Bacopa

Species Bacopa monnieri (L.)

Pennell (11)

3. Vernacular Names:

Language Name

Sanskrit Brahmi, Saraswati

Hindi Brahmi

Marathi Brahmi

Tamil Neer Brahmi

Telugu Saraswataku

English Indian Pennywort

4. Morphological Description:

Habit: Creeping, succulent, perennial herb.

Leaves: Opposite, oblong, sessile, and fleshy.

Flowers: Small, white to pale blue with five petals.

Root: Fibrous.

Habitat: Found in wetlands, marshy areas, and near water bodies.

Distribution: Common throughout India, Nepal, Sri

Lanka, and tropical regions of the world.(12)

5. Chemical Constituents:

Major active compounds include:

Bacosides A and B (main active saponins responsible for cognitive enhancement)
Alkaloids (brahmine, herpestine)

Flavonoids (luteolin, apigenin)

Betulic acid

D-mannitol

Stigmasterol

6. Ayurvedic Properties (Rasa-Guna-Virya-Vipaka):

Property Description

Rasa (Taste) Tikta (Bitter), Kashaya (Astringent)

Guna (Quality) Laghu (Light), Snigdha (Oily)

Virya (Potency) Shita (Cold)

Vipaka (Post-digestive effect) Madhura (Sweet)

Dosha Action Balances Tridosha - mainly pacifies

Pitta and Kapha

7. Therapeutic Uses:

System Indications

Nervous system Enhances memory, concentration, learning ability; reduces anxiety,

depression, and stress; used in Alzheimer's disease and epilepsy.

Digestive system Acts as a mild laxative; improves digestion. Respiratory system Beneficial

in bronchitis and asthma.

kin Helps in eczema, psoriasis, and wound healing.

Reproductive system Improves fertility and sexual vitality (acts as Vajikarana).

8. Pharmacological Actions (Modern Studies):

Nootropic (memory enhancer) Neuroprotective

Antioxidant

Anxiolytic (reduces anxiety)

Anticonvulsant Anti inflammatory (13)

Adaptogenic

Scientific Studies:

Research shows that bacosides improve nerve impulse transmission and repair damaged neurons.

Clinical trials demonstrate improved memory retention and reduced cognitive decline in elderly patients.

9. Formulations Containing Brahmi:

Medhya Rasayana

Brahmi Ghrita

Saraswatarishta Brahmi

Vati Mentat (Himalaya)

Smriti Sagar Ras

10. Dose:

Form Dosage

Powder (Churna) 1-3 g twice daily with milk or ghee

Juice (Swarasa) 10-20 ml

Extract / Capsule 300-500 mg per day

11. Safety and Precautions:

Generally safe in recommended doses.

Excess dose may cause nausea, diarrhea, or stomach upset.

Contraindications: Use with caution in hypothyroidism and pregnancy (consult physician).

12. Quality Control Parameters:

Parameter Standard

Foreign matter Not more than 2%

Moisture content Not more than 10%

Total ash Not more than 12%

Extractive values (alcohol/water) Not less than 15%

Marker compound (Bacoside A) Minimum 0.5% in extract (14)

13. Conclusion:

Brahmi (Bacopa monnieri) is a powerful Medhya Rasayana herb known for its cognitive and neuroprotective benefits. With both Ayurvedic and modern pharmacological validation, it remains one of the best natural remedies for enhancing memory, reducing stress, and promoting overall mental health.

3. Shatavari (Asparagus racemosus Willd.):

1. Botanical Information:

Scientific name: Asparagus racemosus Willd.

Family: Liliaceae (Asparagaceae in modern classification)

Common names:

Sanskrit: Shatavari, Vari, Bahusuta

Hindi: Shatavari

Marathi: Shatavari

English: Wild Asparagus

Tamil: Shimaishadavari

Telugu: Pilligaddu

Part used: Roots (tuberous roots are medicinally important)

2. Morphological Description:

A climbing perennial herb with thin, wiry, smooth stems.

Leaves:Small, needle-like (phylloclades) arranged in clusters.

Flowers: Small, white, fragrant, in small racemes.

Roots: Fasciculated, tuberous, fleshy roots, cylindrical, tapering at

both ends - the main medicinal part.

Fruits: Small, globose berries turning red when ripe.

3. Habitat & Distribution:

Found throughout India, especially in tropical and subtropical regions.

Common in forests, plains, and hilly areas up to 1,500 meters altitude.

Also cultivated in parts of India, Nepal, and Sri Lanka. (15)

4. Chemical Constituents:

Steroidal saponins (Shatavarins I-IV) - main active principles Isoflavones,

Alkaloids, tannins, and mucilage

Asparagamine A (a unique alkaloid)

Essential oils and polysaccharides

5.Ayurvedic Properties:

Property Sanskrit Term Description

Rasa (Taste) Madhura (Sweet), Tikta (Bitter) Nourishing & soothing

Guna (Quality) Guru (Heavy), Snigdha (Unctuous) Promotes strength and moisture

Virya (Potency) Sheeta (Cold) Cooling and calming effect

Vipaka (Post-digestive effect) Madhura (Sweet) Rejuvenating and anabolic Dosha effect

6. Therapeutic Uses in Ayurveda:

1. Female Reproductive Health:

Acts as a galactagogue (increases breast milk production).

Used in menstrual disorders, infertility, and menopause.

Supports uterine health and hormonal balance.

2. Male Reproductive Health:

Acts as an aphrodisiac and improves sperm count and quality.

3.Digestive System:

Treats ulcers, hyperacidity, gastritis, and improves appetite.

4.Nervous System:

Acts as a nerve tonic, reduces stress, anxiety, and promotes calmness.

5.Respiratory System:

Beneficial in dry cough, bronchitis, and tuberculosis.(16)

6.Pharmacological Activities (Modern Research):

Adaptogenic and Antistress

Antioxidant

Immunomodulatory

Anti-ulcer and Anti-inflammatory

Galactagogue (milk-promoting) (17)

7. Formulations Containing Shatavari:

Shatavari Churna

Shatavari Kalpa

Shatavari Ghrita

Shatavari Avaleha

Found in many Rasayana and Stree-tonic preparations like Stree Rasayana Vati, Shatavari Lehyam.

8. Dosage:

Form Dose Route

Powder (Churna) 3-6 g twice daily With milk or warm water

Decoction (Kashaya) 25-50 ml Orally

Tablet/Capsule As per formulation Orally

9. Safety and Precautions:

Generally safe and well-tolerated.

Avoid in respiratory congestion or excessive mucus (due to Snigdha guna).

Pregnant and lactating women can use it under medical supervision. (18)

10.Quality Control Parameters:

Foreign matter: ≤ 2%

Total ash: ≤ 5%

Acid insoluble ash: ≤ 1%

Alcohol-soluble extractives: ≥15%

Water-soluble extractives: ≥ 30

7. Quality Control and Standardization:

A. Mecaning:

Quality Control (QC):

PC involves performing tests and checks to confirm that the herbal drugs is pire, safe, and matches the required standards in terms of identity and Strength.

Standardization:

Standardizations is the process of setting fixed.Specifications for herbal drugs to ensure that every batch has the same quality, composition and therapeutic effects.

B. Objective Of Quality Control:

1. Authenticity: To ensure the correct plant species is used.
2. Purity: To Check that no contaminants, adulterants, or harmful substances are presents.
3. Consistency: To maintain the same quality in every batch of the products.
4. Chemical Verifications: To confirm the presence of important active. Constituents.
5. Sufety & Effecancy: To make sure the drugs works effectively. and is safe for patients.

C. Parameters Of Quality Control:

Parameter Purpose Examples:

Organoleptic Evaluation To Check Sensory properties colour, taste, Odor, texture.

Macroscopy & Microscopy To Confirm correct identity and detect adulterations. Leaf shape, stomata, trichomes..

Physico-chemical Tests To determine parity and quality Ash value, extractive values,

moisture content.

Phytochemical screening To detect active compounds Alkaloids, glycosides, Flavonoids,

D. Standardization Steps:

1 Raw Material Standardizations:

Confirming authenticity and proper collection, drying, and storage of raw herbs.

2.In-Process Standardization:

Monitoring every step during preparation like mixin extraction, grinding, mixing, etc.

3.Finshed Product Standardizations:

Testing the final product for physical, chemicall, and biological quality parameters.

4.Documentation:

keeping detailed record for traceability and quality assurance

E. Importance Of Standardization.:

Ensures safety & Effectiveness :

Guarantees that the herbal medicine delivers the intended therapeutic effects safety. Builds Consumer Trust.

High-quality products increase public confidence in herbal medicine. Supports Regulatory Approval

Needed for AYUSH, WHO, and pharmacopoielal Standard. Improves Global Acceptance.

Standardized herbal drugs are more easily accepted worldwide. (19,20,21,22,23)

8. Analytical Parameters in Herbal Drug Standardization:

1. Macroscopic & Microscopic Evaluation:

Macroscopic Corgamleptic) Evaluation

Observing colour, odor, taste, size Shape of Crude drugs Helps in quick intial identification of the berbs.

Microscopic evalation.

studying issues cells, trichomes, starch grains, Crystals under a microscope confirms

authenticity and detects adulteration

2. Physico-Chemical Parameters:

Parameter Description/Purpose

Moisture content / Loss on Drying (LOD) measures. the amount water present prevents Fungal growth & or Purity

Total Ash value Amount of total inorganic residue after incineration indicates contamination or purity.

Water-Soluble Ash portion of ash soluble in water indicates adulterations.

Extractive value(water/Alcohol) Amount of chemicals constituents extracte with solvents Helps estimate

active constituents.

PH value Acidity or alkalinity to extract important for stability & pharmaceutical use.

3. Phytochemical Screening:

Alkaloids -mayers, Dragendorffis test cukaloid compounds.Detects

Flavonoids-Shinoda fest – confirms presence of Flavonoids

Saponins- for Froth test Detects saponins.

Glycosides - keller-killion test identifies glycosides

Steroids/Triterpenoids - Liebarmann-Burchard test - Detects Steroidal compounds.

4. Chromatographic Analysis:

TLC (Thin Layer chromatography) - Quick Simple identification.ex. preliminary analysis.

HPTLC –chemical Fingerprinting.ex. identifying herbal drugs markers :

HPLC - qualitative estimationex.measuring adice constituents.

GC(ras chromatography) - Analyzing volatile dis ex. Essential oils & aroma compounds.

5. Spectroscopic/Instrumental Methods:

UV-visible spectrophotometry absorption properties -measure chemicals

FTIR CInfrared Spectoroscopy) - Identifles Functional groups in compounds.

NMRCNuclear Magnetic Rasonance) - Determines-molecular structure.

6. Parameter Microbial & Contaminant Analysis:

Total Bacterial count - Ensure microbial Safety

Total Fungal count - Detects Fungal contamination.

Pathogen Test CE.coli, salmonella) - check presence. of harmful microbes.

Heavy metal Analysis – Detects lead, asenic, mercury, cadmium.

Pesticide Residues - Ensure absence of hormful - chemicals.

Aflatoxins - Defects toxic fungal metabolites.

7. **Standardizations Using Mrker Compounds:**

Herbal Drugs marker compound ased Ex.

Ashwagandha → Hithanolides.

Brahmi → Bacosides.

Shatavari →Shat Avarins.

Guggul → Guggulsterones. (24,25,26,27)

9. Challenges In Herbal Monograph Preparation:

1. Lack Of Standardization:.

Herbal drugs show variations in quality because plants differ in specles Climate, harvesting time and processing. This makes difficult to create Fixed Standard.

2. Variation In Raw Material Quality:

Environmental Factors Csoil, climate, rainfall) change the level of active ingredients in plants. Sometimes herbs are adulterated or Substituted, lowering reliability.

3. Insufficient Scientific Research:

Many traditional herbs lack enough modern. Studles, clinical trials, or toxicity data, making it challenging to create strong scientific monographs.

4. Complex Phytochemical Composition:

Herbs contain many compounds workin togethers, identifying each one and : working understanding their combined effects is Scientifically difficults.

5. Poor Documentation Of Traditional Knowledge:

Much Ayurvedic knowledge is transmitted orally. 'converting ancient descriptions into modern scientific terms is Challenging. 6.Analytical Method Limitations:

many heab Validated, rellable analytical techniquers are not available for many herbs. standard reference markers are often missing.

6. Regulatory Differences Across Countries:

Fach region has its own rules for herbal medicines. Lack of uniform regulations. makes global monograph..

7. Stability & Shelf-Life Issue:

Herbal Formulations are sensitive to heat, moisture and light. Determining accurate shelf- life parameters. Is Complex

8. Limited Funding & Research Facilities:

Herbal research receives less Financial support and bas limited access to advanced lab equipment, slowing monograph developments.

9. Nomenclature Confusion:

Many herbs have multiple local names, and sometimes different plants share the some name. This leads to confusion in identifiation and documentations. (28,29,30)

10. Conclusion:

The preparation of a herbal monograph is a detailed and careful process that brings together both traditional Ayurvedic wisdom and modern scientific knowledge. Creating a reliable monograph requires accurate information about the identity, quality, safety, and effectiveness of each medicinal plant. However,this process becomes challenging due to variations in raw materials, lack of complete scientific studies, and differences in global regulations.Despite these difficulties, developing proper monographs is essential. They help ensure that herbal medicines are genuine, safe, and consistent in their therapeutic effects. A well prepared monograph also supports quality control, encourages research, and strengthens the global acceptance of Ayurvedic herbs.By combining well-documented traditional knowledge with validated scientific methods, we can create strong, trustworthy monographs that benefit both healthcare professionals and patients. This integrated approach will help promote safe, effective, and standardized herbal medicine for future generations.

Reference:

1. Sharma V.Mishra A.Maurya S.Time tested remedies for wound care from Ayurveda sciences. Innovare Journal of Ayurvedic Sciences. 2016;4(4):1–3.

2. Ajmeer A.S., Dudhamal T.S., Gupta S.K., Mahanta V.D. Katutpila (Securinega leucopyrus) as a potential option for diabetic wound management – A Case Report. Journal of Ayurveda & Integrative Medicine. 2014;5(3):185–187.

3. Patwardhan B., Vaidya A.D.B. Natural products drug discovery: Accelerating the clinical candidate development using reverse pharmacology approaches. Indian Journal of Pharmacology. 2010;42(4):295–302.

4. Mukherjee PK, Harwansh RK, Bahadur S, et al. Development of herbal monographs and quality standards for traditional medicines. Journal of Ethnopharmacology. 2017;197:10-24.

5. Dwivedi V., Dwivedi A. Ayurvedic concepts related to wound healing. Ayu.2012;33(3):331-335.

6. Satyavati, G. V. (1988). Guggulipid: A promising hypolipidemic agent from gum guggul. Indian Journal of Medical Research, 87, 327–335.

7. Ulbricht, C., Basch, E., Szapary, P., et al. (2005). Guggul for hyperlipidemia: A review. Journal of Herbal Pharmacotherapy, 4(2), 1–37.

8. Singh, R. B., Niaz, M. A., Ghosh, S., & Rastogi, V. (1994). Hypolipidemic effects of Commiphora mukul (guggul). Journal of the Association of Physicians of India, 42(6), 454-457.

9. Sharma, J. N., & Sharma, J. (1990). Guggulsterones: Pharmacology and therapeutics. Indian Drugs, 27(1), 1-10

10. Singh, V., & Kaul, V. (2005). Toxicological studies of guggul (Commiphora mukul). Journal of Ethnopharmacology, 100(3), 332-336.

11. Russo, A., & Borrelli, F. (2005). "Bacopa monniera, a reputed nootropic plant: An overview." Phytomedicine, 12(4), 305-317.

12. Singh, H. K., & Dhawan, B. N.(1997)."Neuropsychopharmacological effects of the Ayurvedic nootropic Bacopa monniera Linn."Indian Journal of Pharmacology, 29(5), 359- 365.

13. Deepak, M., & Amit, A. (2004). "The need for establishing identities of 'bacoside A' and 'bacoside B', the putative major bioactive compounds of Bacopa monnieri." Phytomedicine, 11(3), 264-268.

14. Stough, C. et al. (2001). "The chronic effects of an extract of Bacopa monniera on cognitive function in healthy humans."Psychopharmacology (Berl), 156(4): 481-484.

15.Pandey, S. K., & Sharma, V. (2010). Phytochemical evaluation of Asparagus racemosus. Journal of Ethnopharmacology, 132(2), 285-294

16. Goyal, R. K., et al. (2003). Pharmacological properties of Shatavari: A review.Phytomedicine, 10(6-7), 523-530.

17. Singh, R., et al. (2009). Asparagus racemosus: Traditional uses, pharmacological studies, and scientific validation. Phytotherapy Research, 23(8), 999-1010.

18. Alok, S., et al. (2013). Herbal significance of Asparagus racemosus. Asian Pacific Journal of Tropical Disease, 3(3), 242-251.

19. Sharma, A., Shanker, C., Tyagi, L. K., Singh, M., & Rao, C. V. (2008). Herbal medicine: A review on quality control. Pharmacognosy Reviews, 2(4), 23-28.

20. Ekor, M. (2014). The growing use of herbal medicines: Issues relating to adverse reactions and challenges in monitoring safety. Frontiers in Pharmacology, 4, 177.

21. Bharat G, Sharma PP, Singh S. Quality Control and Standardization of Herbal Drugs. International Journal of Research in Ayurveda and Pharmacy (IJRAP). 2011;2(4):1100–1109

22. Organoleptic, microscopic, and physicochemical evaluation are essential QC parameters (21, 22).

23. TLC/HPTLC helps establish chemical fingerprints (23).

24. Gore M., Prasad V., Dighe V. Role of Ayurvedic drugs in wound management: A systematic review. Journal of Research in Ayurvedic Sciences. 2019;3(1):1-10

25. Sen C.K., Gordillo G.M., Roy S. et al. Human skin wounds: A major and snowballing threat to public health and the economy. Wound Repair and Regeneration. 2009;17(6):763-771.

26. Boateng J., Catanzano O. Advanced therapeutic dressings for wound healing. Journal of Pharmaceutical Sciences. 2015;104(11):3653-3680.

27. Nasri H, Shirzad H. Toxicity and safety of medicinal herbs. Iran J Basic Med Sci. 2013;16:1- 10.

28. Jaiswal YS, Williams LL. A glimpse of Ayurveda. J Tradit Complement Med. 2017;7(4):394-398.

29. Gupta A, Singh RL. Wound healing and role of medicinal plants. Pharmacogn Rev. 2014;8(16):159-171

30. Kumar MS, Kirubanandan S, Sripriya R, Sehgal PK. Triphala promotes wound healing. J Surg Res. 2008;144(1):94-101