

REVIEW OF HERBAL FORMULATIONS

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Article Received on
12 July 2023,

Revised on 02 August 2023,
Accepted on 22 August 2023

DOI: 10.20959/wjpr202315-29492

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ABSTRACT

Herbal formulations are dosage forms that contain one or more herbs or processed herbs in exact amounts to provide specific nutritional and cosmetic benefits for use in diagnosing, treating, and mitigating human ailments. Alter the structure or physiology of human people or animals. Herbal formulations contain an active ingredient, an herbal ingredient, or both. Herbal preparation or herbal material mixed with one or more herbal preparations. Herbal preparations are made by submitting herbal ingredients to processes such as extraction, distillation, expression, fractionation, purification, concentration, or fermentation. Comminuted or powdered herbal compounds, tinctures, extracts, essential oils, expressed juices, and processed exudates are examples.

KEYWORDS: Herbal formulations, Novel- Herbal formulation, new drug delivery systems.

INTRODUCTION TO HERBAL FORMULATION

Herbal formulations are dosage forms that contain one or more herbs or processed herbs in exact amounts to provide specific nutritional and cosmetic benefits for use in diagnosing, treating, and mitigating human ailments. Alter the structure or physiology of human people or animals. Herbal formulations contain an active ingredient, an herbal ingredient, or both. Herbal preparation or herbal material mixed with one or more herbal preparations.

Herbal formulations are created by combining herbs. Extraction, distillation, expression, and other procedures Fractionation, purification, concentration, and fermentation are examples of processes. Comminuted or powdered. Plants, whole, fragmented, or sliced, plant parts Algae, fungi, and lichen in their natural state, usually dried but sometimes fresh. Herbal formulations were prepared using these ingredients.

Herbal compounds are accurately specified by the plant portion employed and the botanical name (genus, species, variety, and author) according to the binomial system. Tinctures, extracts, essential oils, expressed juices, and processed exudates are examples of herbal formulations. Markers are chemically defined constituents or sets of constituents of an herbal substance, herbal preparation, or herbal medical product that are of interest for control purposes regardless of whether or not they have therapeutic efficacy.

If the markers have been quantitatively determined in the herbal substance or herbal preparations, they serve to compute the amount of herbal substance or herbal preparation in the herbal formulations. Design and development of herbal formulations, pharmacopoeial tests and acceptance criteria, periodic testing, release, shelf life acceptance criteria, in-process tests, alternative procedures, evolving technologies, reference standard, and statistical concepts.

Herbal medications are primarily used for health promotion and treatment of chronic, rather than life-threatening, illnesses. However, when contemporary medicine fails to treat an illness, such as advanced cancer or novel infectious diseases, the use of traditional medicines grows.

Herbal formulation

Herbal preparations are made by submitting herbal ingredients to processes such as extraction, distillation, expression, fractionation, purification, concentration, or fermentation. Comminuted or powdered herbal compounds, tinctures, extracts, essential oils, expressed juices, and processed exudates are examples.

Difficulties in herbal formulation

1. Herbal dosage forms, according to WHO, are physical forms such as liquid, solid, semi-solid products made from herbs, with or without excipients, in a specific formulation (such as decoctions, pills, ointment, etc.).

2. A significant issue is objectively assessing contradictory toxicological, epidemiological, and other data, as well as verifying the herbal ingredients employed.
3. The toxicological, epidemiological, and other evidence available on herbal formulation is perplexing.
4. Herbal materials are difficult to authenticate.
5. Pharmacological, toxicological, and clinical documentation are time-consuming tasks.
6. It is difficult to adhere to pharmacovigilance criteria while using herbal formulations.
7. More research on herb-drug interactions is required.
8. Standardization, safety, and efficacy are major challenges.
9. There are numerous obstacles to conducting clinical trials of herbal medicines.

Factors that influence herbal formulation

1. Drug tampering
2. Poor collection.
3. Inadequate planning
4. Improper storage
5. Significant replacement with plant material Substitution with used-up medications

Important herbal drug formulation steps

1. Herbal drug selection, drying, and grinding
2. Plant material extraction
3. Extract filtration and concentration
4. Powdered extract
4. Dosage form preparation

Types of herbal formulations

1. Ayurvedic-herbal compositions (For example, Churna, Arishta, Asava, Bhasma, Avelaha, etc.)
2. Conventional- Herbal Pharmaceutical Dosage Formulation (Example: Tablet, Capsules, Ointment, Suspension, and Emulsion)
3. Novel- Herbal formulation (Example: transdermal/controlled drug delivery/targeted drug delivery dosage forms (Phytosomes, Nanosomes, Nanoemulsion, Liposomes)

Herbal liquid dose forms

Decoctions: Boiling of crude medication with water for a set amount of time, followed by cooling and filtering of the extract. Sijunzi decoction (Chinese herbal treatment made up of

Panax Ginseng, Poriacocos, Atractylodes macrocephala, and Glycyrrhiza auralensis) is one example. Dosage: 3-4 times a day, up to 500 ml.

Infusions: These are created by extracting herbs in cold or hot water and diluting the solution. Should be kept in a cool, dry area. The shelf life is up to 24 hours. Tea, coffee, and lemon infusions are among examples. Dosage: 3-4 times a day, up to 500 mL.

Tincture: Made by combining 1 part of the plant with 5 to 10 parts of ethanol, it is an alcoholic or hydro alcoholic extract of the herbal ingredients. Can be kept for two years in a cold, dry place. Iodine, benzoin, and cannabis tinctures are a few examples. Dosage: 1-2 times day, 5ml diluted to 25ml.

Syrup: Syrups are thick liquids with a lot of sugar or other sweeteners in them. May or may not include flavoring and medicinal ingredients. They contain preservatives because of their high sugar content, which makes them vulnerable to microbial infection. 1-2 teaspoons, three times per day. Examples include cough syrup, heart tonic syrup, brahmi syrup, and hempushpa syrup.

E. Oral emulsions: These are liquid dosage forms that are made up of two incompatible phases and stabilized with the addition of an emulsifying agent. Small droplets of a liquid can be uniformly disseminated in another immiscible liquid using emulsification tools including agitators, homogenizers, colloid mills, and ultrasonic devices. Example: Intralipid® Perikabiven®

F. Aromatic waters: These are water-based products that have been heavily infused with essential oils. These are made by combining distilled water, ten parts talcum powder, and one part essential oil. It is well shaken, set away for 12 hours, filtered, and the volume is adjusted. To prevent it from disintegrating, it ought to be produced in tiny amounts. For instance, cardamom, peppermint, and camphor water.

G. Herbal glycerites: These tincture-like dosage forms are made by extracting herbal medicines using glycerine at a ratio of between 50 and 60 percent. Glycerites have a storage life of between six months and two years. This form can be used to prepare pediatric medications. Herbs containing gums or resins cannot be treated with glycerin. Examples include extracts from Rhodiola, Echinacea, and Goldenseal.

Oxymels

These are sweet and sour compositions with honey and a small bit of vinegar as a carrier. Garlic, cayenne pepper, and lobelia oxymels are other examples.

Herbal dosage forms in solid forms

- A. Herbal tea bags:** - Herbal materials, such as dried roots, leaves, or flowers, are packaged in paper or cloth bags. Bags must be free of bleach, gluten, and dioxin. For infusion, the boiling water should be poured over the bags.
- B. Dried powder:** Herbs are dried and ground into coarse or fine powder. It can be taken simply by mixing it with warm water and is available in capsule or sachet form.
- C. Dry extract powder:** These can be generated by spray drying or freeze drying fluid extract with or without an adsorbent, or by drying and milling to produce a powder. Excipients, stabilizers, and preservatives may be present. Dry extracts can be combined with capsules, pills, or granules.
- D. Herbal blends:** These consist of two or more plants together. Herbal blends are created by drying, grinding, and mixing plants in a certain order.
- E. Granules:** Made from dried fluid extracts, these are clusters of tiny sphere-shaped particles. Can be given as a solution or suspension following reconstitution with water. Makes it possible to create tablets or capsules. Examples include Gastro beet oral dispersible granules, chyavanprash granules, and vasawlehachurna granules
- F. Pills:** These are spherical, bigger dose forms formed of herbal extracts than granules. These are created by triturating dry extract or dried powdered herbs with excipients to make bulk. Madhunashinivati, Chandraprabhavati, Khadiradivati, etc. are a few examples.
- G. Capsules:** These are solid dosage forms that contain the medicine and the necessary filler and are housed in a gelatin capsule.

Advantages

- Mask the flavor of the drug.
- Ensure dose consistency.
- Content more quickly than tablets.

For Examples, fenugreek, chlorella, pudinhara, and moringa capsules.

- H. Lozenges:** These are solid dosage forms that release medication slowly in the mouth. Can have a local or systemic effect. To manufacture lozenges, herbal extract is cooked with sugar and water.
- I. Tablets:** Tablets are a solid dosage form composed of herbal extract, granules that have been combined with excipients and crushed to form a specific size and shape.

Methods of preparation

1. Straight compression
2. Granulation in water

Alternative herbal dosage forms

- A. Herbal ointment:-** These are semi-solid, greasy preparations with anhydrous immiscible bases that are typically utilized on the skin, rectum, or nasal mucosa. The procedure of manufacturing ointment begins with heating the oil and aqueous phases separately, followed by mixing the two phases with steady stirring until the mixture congeals. Example:-.Calendula ointment, Herboheal ointment, pilex, pain relief ointment are some examples.
- B. Herbal creams:-** Creams are semisolid dosage forms that have a hydrophilic base. herb in Made by combining powdered medication or extract with a cream base. When compared to ointment, it has a relatively short shelf life. For Example, herbal fairness cream, infant cream, and so on.
- C. Herbal balms:-** These dosage forms are similar to ointment and are used to ease pain. These are created by combining botanicals with an ointment base. Tiger balm, herbal pain balm, and lip balm are a few examples.
- D. Inhalation:-** These preparations are intended for use as aerosols in the bronchial tubes or lungs. They could be inhalation of dry powder. Astha assistance drops, karval plus inhalation pills are examples.
- E. Plasters and patches:-** These are prepared by applying soft or dry herbal extract on a fabric or synthetic resin substrate. Topically applied to the skin to deliver the active ingredient through the skin. Capsicum patch, herbal medicinal plasters, for example
- F. Medicated oils:-** These are made by combining, macerating, or boiling herbal drugs, fresh juice extracts, and suitable fixed oils. Examples-Indulgekha oil, tea tree oil, peppermint oil, and so on.
- G. Herbal soaps:-** These are made by combining herbal medications with antifungal or antibacterial characteristics and a detergent base. Neem and turmeric soap, for example, or papaya skin whitening soap.
- H. Herbal pastes:-** These are similar to ointments in that they comprise 50% medication powder dissolved in a fatty basis. Examples Dantkanti toothpaste, miswak toothpaste, and so forth.

- I. Suppositories and Pessaries made from herbs:-** Made by combining finely powdered herbs or extracts with a foundation of cocoa butter. Tea tree pessaries, neem oil suppositories, and herbal vaginal douches are a few examples.
- J. Herbal liniment:-** Used to alleviate muscular and ligament discomfort and pain. Should not be used on broken or cut skin. Made with an alcoholic extract of heat-producing plants. Liniment plus, for example.

Novel drug delivery system in herbal formulation

The methodologies, formulations, technologies, and systems used to transport a pharmaceutical chemical in the body so that it can safely achieve its targeted therapeutic effects are referred to as novel drug delivery systems (NDDS).

NDDS is a combination of improved methodologies and innovative dosage forms in which the medicine is supplied by the system rather than the traditional drug delivery mechanism.

The following are the benefits of NDDS:

1. Improved solubility and bioavailability
2. Increase the dispersion and pharmacological action.
3. Drugs can be released at a set rate; 4. Less toxicity
4. Increase stability
5. It is simple to administer
6. Persistent activity

Applications for herbal formulations of new drug delivery systems

Great strides have been made on in the previous few years on NDDS for plant actives and new drug delivery systems (NDDS) extracts. Various innovative herbal formulations, such as those using polymeric nanoparticles, Nano emulsions, microspheres, phytosomes, nanocapsules, It has been found that ethosomes and transferosomes use bioactive and plant extracts.

The novel formulations are reported to have significant advantages over conventional formulations of plant actives and extracts, including improved solubility, bioavailability, toxicity protection, pharmacological activity enhancement, stability enhancement, improved tissue macrophage distribution, sustained delivery, and protection from physical and chemical degradation. The current review describes the current state of development of unique herbal

formulations, including their technique of manufacture, type of active components, size, and entrapment efficiency, route of administration, biological activity, and applications.

Over the last few decades, much emphasis has been placed on the development of innovative drug delivery systems (NDDS) for herbal medications. The innovative carriers should preferably meet two requirements. To begin, it should supply the drug at a pace determined by the body's demands over the course of treatment. Second, it should transport the active ingredient of the herbal drug to the site of action.

None of these can be met by conventional dosage forms, including prolonged-release dosage forms. In phyto-formulation research, developing nano dosage forms (polymeric nanoparticles and Nano capsules, liposomes, solid lipid nanoparticles, phytosomes and nano-emulsions, etc.) has a number of advantages for herbal drugs, including increased solubility and bioavailability, protection from toxicity, increased pharmacological activity, increased stability, and so on.

1. The liposome

Liposomes are spherical particles that contain a portion of the They readily diffuse (float) into their interior in a solvent. They might have one, two, or more concentric membranes. Liposomes are made up of polar lipids with a lipophilic and hydrophilic molecular structure a set of molecules that are all the same. Polar lipids self-assemble and create selforganized colloidal particles when they come into contact with water. Simple examples are detergents, whose constituents can form micelles but not polar lipids with larger hydrophobic portions. Large curvature radii to create micelles, but they also produce bilayers that can self-consolidate into lipid vesicles or liposomes.

2. Nanoparticle

Recently, there has been a lot of interest in the nanonization of herbal remedies. Nanoparticles and nanoemulsions are colloidal systems with particles ranging in size from 10 nm to 1000 nm. There have also been reports of nanoparticle systems with mean particle sizes much beyond the standard of 100 nm, such as nanonized curcuminoids, pacli-taxel, and praziquantel, which had mean particle sizes of 450, 147.7, and even higher than 200 nm, respectively. Additionally, submicronic (b1 lm) colloidal systems could potentially be used to define nanoparticles. In contrast to nanocapsules, which contain an active ingredient core and a polymeric membrane, nanospheres have a matrix-like structure with the active ingredient

spread throughout the particles. Numerous benefits of nanonization include boosting compound.

3. Phytosomes

Phytochemical and phytopharmacological sciences have established the compositions, biological activities, and health benefits of plants throughout the last century. Beneficial benefits of several plant items. The majority of biologically Plant active components are polar or water soluble compounds. However, water-soluble phytoconstituents (such as flavonoids, tannins, terpenoids, and so on) are poorly absorbed due to their enormous molecular size, which cannot be absorbed through passive diffusion or because to their low lipid solubility; significantly reducing their ability to traverse lipid-rich cellular membranes. As a result, bioavailability is poor. It has frequently been noticed that isolation the purification of an extract's elements may result in a partial or total loss of the purified constituent's unique bioactivity. The natural the constituent synergy is lost. Phytosome has been discovered.

4. Emulsions

Emulsion is a type of non-homogeneous dispersion system. Made of two kinds of liquids unable to dissolve each other, and one of which disperse in the other one in a shape of droplets. In general, emulsion is made up of an oil phase, Water phase, surfactant, and sub-surfactant are all examples of surfactants. Its physical appearance is Liquid that is translucent to transparent. There are two types of emulsion: standard and special. micro-emulsion (10-100 nm), sub-micro-emulsion (0.1-100 m) (100-600 nm), etc. The micro-emulsion is another name for one of them. Sub-micro-emulsions are also referred to as lipid emulsions.

5. Microspheres

Medication administration using micro particulate systems is advantageous since microspheres can be swallowed or injected and; be adjusted for desired release patterns and medication delivery site-specific in rare circumstances, it is even possible to offer organ-targeted release. So far, a number of Rutin, camptothecin, zedoary oil, and tetrandrine are examples of plant active substances. Microspheres of quercetine and *Cynara scolymus* extract have been created. Furthermore, reports on immunological microspheres and magnetic microspheres are available. In recent years, it has also become common. The immune microsphere possesses the immune system. as a result of the antibody and antigen becoming coated or adsorbed on the polymer microspheres.

CONCLUSION

There is a lot of research going on in the field of new medicine delivery and targeting for plant actives and extracts. However, research in this field is still in its early stages. Many issues exist in the research, development, and application of carrier materials in order to generate more acceptable carriers that can minimize drug toxicity, increase activity, and improve the overall quality of the agents. Herbal medications offer significant therapeutic potential, which should be investigated through the development of some value-added drug delivery systems.

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