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REVIEW ARTICLE

THE DEVELOPMENT OF AYURVEDA: FROM ANCIENT PRACTICE TO MODERN FAD

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ABSTRACT: Aim: The goal of this study was to find out more about Ayurveda and how it has influenced drug discovery strategies. **Materials and methods:** We've read every published study on Ayurveda's extensive history and wide-ranging usage today. Ayurvedic pharmaceutical quality evaluation includes quality control, standardisation, chemo-profiling, and metabolite fingerprinting. Developing safe, effective, high-quality Ayurvedic medications for human health is gaining pace. Scientific documentation, process validation, and other variables ensure the quality, safety, and effectiveness of Ayurvedic drugs. **Results:** This study focuses on Ayurveda's main goal and role in healthcare. Ayurveda discusses Arka, Asavas, Aristas, Churna, Taila, Vati, Gutika, Bhasma, etc. Ayurvedic herbs yielded many interesting therapeutic ingredients. Chemo-profiling is required to assess Ayurvedic medication effectiveness. Standardization, stability, and quality consistency of Ayurvedic items are talked about, as well as measuring bioactive chemicals, identifying fake and similar drugs, and chromatographic fingerprinting. **Conclusion:** Scientific validation and documentation are essential for Ayurvedic treatment to be acknowledged globally. Ayurvedic herbs' identification, purity, safety, drug content, and physical and biological qualities may all contribute to their medicinal efficacy. Ayurvedic medicine must be studied using cutting-edge science to be acknowledged. This study tries to help by pointing out important things to think about as Ayurvedic medicine spreads.

Key Words: Ayurveda, Current era, Standardization, Stability, Drug content.

INTRODUCTION:

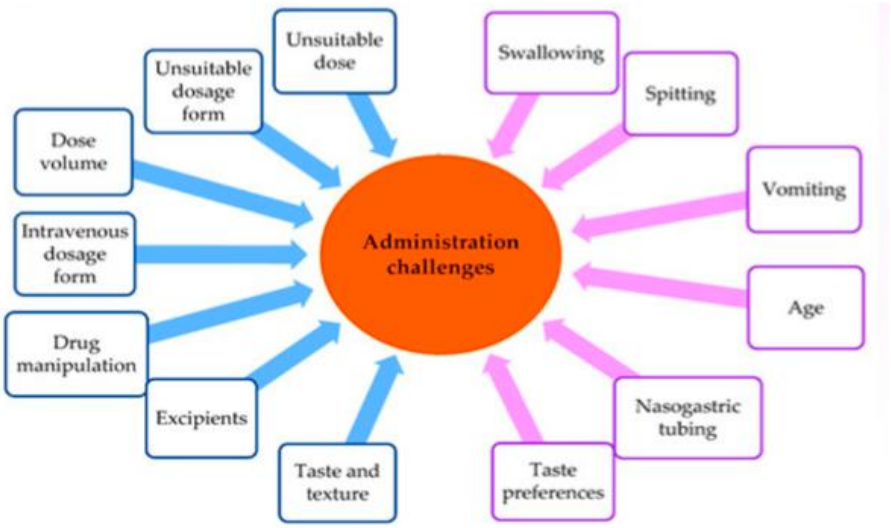
Traditional medicine comes in as many diverse varieties and dosage forms as there are various civilizations in the world [1]. The realisation that we are up against obstacles in the treatment of a variety of medical disorders has contributed to the current trend toward the use of traditional medicine, which is seeing a rise in popularity [2]. This trend is contributing to the current trend toward the use of traditional medicine, which is seeing an increase in popularity. We need new innovative types of therapeutic dosing that are not only more effective but also more delightful to consume [3]. The advancement of medical science would grind to a halt if there was no way to overcome the difficulties associated with dosing and the development of new treatments [4].

In the practise of Unani medicine, further research is required to study the subject of dose. To a considerable extent, our predecessors have to thank for the invention of the dose form that is used in Unani medicine [5]. It is about time that some of our existing dosage forms were brought up to date and that changes were made [6]. These adjustments are necessary at this time as a consequence of the progress achieved by the human race as a whole as well as the way the vast majority of people live their lives [7]. In this essay, we will examine the roots of Unani medicine, which is a traditional medical practise that dates back to the ancient times and started in Asia. We will also discuss the contemporary applications of Unani medicine.

IMPROVING THE DOSAGE FORM OF CONVENTIONAL MEDICINE:

Necessity and Benefit:

The usage of herbal medicine is progressively finding more importance nowadays, particularly with the understanding that we are facing greater obstacles in the treatment of various medical illnesses such as diabetes and cancer. There is a demand in the present day for medication dose forms that are both more effective and more tolerable [8].



Similarly, some Unani formulas beneficial in different illnesses and disorders also require adjustment in this area [9]. Enhancing solubility and bioavailability, protecting from toxicity, boosting pharmacological activity, boosting stability, improving tissue macrophages distribution, a sustained drug delivery system, increasing compliance, decreasing total drug administration, and improving patient outcome are all benefits of using current trends in dosage forms for traditional medicines [10].

POSSIBLE NEW DEVELOPMENTS IN UNANI AND AYURVEDIC HEALTHCARE:

Modification of the Dosage Form to Include Crude Extract:

Extract refers to the substance produced by extracting the active ingredients from animal or herbal medications using a suitable solvent or combination of solvents [11]. These extracts contain just the useful ingredients [12]. Extracts are often used for the crude extract, which includes many different metabolites such alkaloids, flavonoids, glycosides, terpenoids, etc. [13] Liquorice solid extract is an example of a fluid extract that has been totally dried. Extracts are beneficial because they contain soluble plant metabolites [14]. Pure substances, unwelcome semisolids, and powders are absent from extracts. As a result, the amount taken is much less. Pills and capsules may be made using an extract containing solely the active ingredients [15].

Innovative Method of Drug Administration:

A unique drug delivery system is an innovative strategy for administering medications that overcomes the drawbacks of the standard drug administration methods already in use [16]. In an effort to improve upon the status quo, manufacturers of novel drug delivery systems have set out to do away with every drawback of traditional drug administration methods [17]. The medicine's effectiveness is improved, patient compliance is raised, and the need for repeated drug administration is minimised; in addition, the drug's therapeutic value is elevated due to its decreased toxicity and increased bioavailability, etc. [18]

NEW TRADITIONAL MEDICINE DOSAGE FORMS FOR USE IN UNANI MEDICINE:

Oral Dosage Forms:
Granules:

The original meaning of the word "granule" was "grain" in Latin, so the two words are closely related [19, 20]. Granules formulation has benefits including better product uniformity, densification, flow rates and rate of uniformity, ease of metering or volumetric dispensing, reduction of dust, and an improved product's visual appeal [21, 22].

Types of Granules:
A. Effervescent Granules:

The benefits of effervescent granules over more traditional pharmaceutical delivery systems are many. They employ effervescent forms as a replacement for liquids since many active components are more stable in that form [23]. Children who have trouble swallowing pills or capsules might benefit greatly from their simple administration. The mixture creates a pleasant flavour that may disguise the harsh aftertaste of certain medications. Potentially useful for reducing or eliminating gastrointestinal medication adverse effects. They can reduce the time it takes for a medicine to enter the bloodstream and start working in the body. Consumers prefer them over the traditional preparations because of their convenience and attractiveness [24].

B. Rapid Release Granules:

The class of compounds whose absorption is strongly reliant on the dissolving of the medications in the gastrointestinal system is likely to benefit from rapid release granules [25]. The bioavailability of chemicals that are poorly water-soluble may be improved by using rapid release granules [26].

Tablets:

Since its inception, the tablet has been the most popular oral dose form. Some individuals, however, have trouble swallowing tablets whole, which led to the development of fast-dissolving tablets [27].

A. Fast Dissolving Tablet [FDT]:

Pharmaceutical firms are increasingly investing in the development of fast dissolving tablets as the preferred method of delivering medication to patients [28]. When opposed to more conventional dose forms, fast dissolving tablets are meant to first breakdown and then be eaten without the need for water [29]. Because it doesn't need drinking water, it's easier to take, and the medicine dissolves and absorbs faster and has a higher bioavailability [30].

B. Rapid Disintegrating Tablets - [RDT]:

The fast-dissolving tablet is the most popular commercial product among the different dosage forms designed to increase the convenience of administration [31]. Patients who have difficulty swallowing, such as the elderly or those with renal disease, or those who refuse to take their medication, such as those with paediatric, geriatric, or mental diagnoses, benefit from this method of administration [32]. The medicine is administered quickly, with a pleasant mouthfeel, and without the danger of choking or suffocating, making it ideal for busy persons and tourists who may not always have access to water [33, 34].

Capsule:

To illustrate, capsules are a kind of solid dose form. It contains soluble drug ingredients encased in a hard or soft shell or container. This receptacle/shell is constructed out of gelatin and other non-gelatin materials [35]. Because the rate of reactivity between pharmaceuticals in the powder dosage form under atmospheric circumstances is slower than the rate of reaction in a liquid medium, capsules exhibit higher stability than liquid dosage forms [36]. The dosing may be precise. Capsules are simple to use since they just need one swallow (suitable shape and slippery when moistened). Flavors that aren't to one's liking may be simply covered up [37]. A regulated drug release is possible. By placing them in opaque capsules, they may be protected from light. Powdered medications are absorbed more quickly than tablets because their particles are smaller [38]. This results in less medicine being absorbed into the bloodstream, which decreases the risk of a drug's local concentration in the stomach and intestines causing discomfort. Patients like that they look nice, are lightweight, and can be easily stored [39].

Suspension:

To put it simply, suspensions are a kind of substance in which a solid is scattered in a liquid [40]. When it comes to systems, suspension is by far the most relevant for a pharmaceutical or formulation scientist. Numerous pharmaceuticals, cosmetics, meals, *etc*. use suspensions in their production [41]. The medication is insoluble in suitable drug carriers, or the syrup formulation of the medicine may not be effective at masking the drug's flavour [42]. Due to its low risk of adverse effects, oral suspension is the dosing form of choice for poorly soluble medicines. The inability to easily take a solid dose form is a common problem for individuals of all ages, but especially those who are young or elderly [43]. Because of this, the patient may simply smash the solid dosage form, or in the case of a capsule, empty the contents into an appropriate vehicle (the medication is now in a suspended condition) and give it to themselves [44]. There is clearly a need for a suspension dose form, although caution must be used [45].

Contemporary Syrup:

Syrups are a concentrated, viscous, aqueous solution of sugar or a sugar substitute, with or without flavourings and medicinal compounds; syrups have outstanding taste masking qualities for bitter or salty medications [46]. Children and adults alike have a positive reaction to flavoured syrups, making them a viable medium for impromptu compounding [47]. Many medications recommended by physicians are given to children in the form of flavoured syrups [48].

Linctus:

Most linctuses are designed to alleviate coughing, and they come in a liquid dose form and have a thick consistency [49]. Due to its viscous texture, linctus coats the throat and helps to decrease the irritation that is the primary cause of cough. Sugar-free linctuses have been reformulated for those with diabetes or who want to prevent tooth cavities [50].

Emulsions:

Two immiscible liquids (such oil and water) are combined to form a colloidal dispersion known as an emulsion. When it comes to fixing issues with the distribution of drugs and cosmetic agents, stable emulsions are a great formulation option. The ease with which emulsions may be administered may also contribute to their popularity [51]. It has been suggested that emulsion systems, as opposed to other dispersion systems like suspensions, may be more user-friendly for oral or topical administration. Using emulsions as a topical application may be useful since they may be easily removed with water. When poorly absorbed species are presented in the form of an emulsion, gastrointestinal absorption is generally improved. Thanks to emulsification, malnourished or stressed individuals may get lipid nutrients intravenously [52].

Microemulsions:

To make a microemulsion, oil is first dispersed in an aqueous surfactant solution, and then a sufficient quantity of a fourth component is added to create a clear system [53]. The use of micro-emulsion technology in micro-encapsulation has been widespread and fruitful. Microemulsions are gaining attention because of their potential in the beauty and medicinal industries [54].

SELF-EMULSIFYING DRUG DELIVERY SYSTEMS (SEDDS):

Isotropic oil-surfactant combinations in these elaborate systems spontaneously emulsify when introduced to water (e.g., the aqueous contents of the stomach) [55]. SEDDS are used to increase the bioavailability of poorly soluble medications when taken orally and to reduce the severity of side effects on the digestive tract [56]. Milk thistle, scientifically known as *Silybum marianum* Linn. Gaertn, is the source of the active ingredient silymarin, which has been shown to be useful in treating a wide range of liver problems in clinical trials [57]. The bioavailability of silymarin was shown to be significantly improved by a lipid-based self-micro emulsifying drug delivery system (SMEDDs) produced using silymarin [58].

LYOPHILIZED PRODUCTS (SOMETIMES KNOWN AS "FREEZE-DRIED"):

Lyophilization results in a substance that thrives in a desiccated form. In lyophilization, the freezing and drying processes happen simultaneously using the same apparatus. A lyophilizer or freeze drier is necessary for this procedure [59]. As opposed to their solution counterparts, many parenteral medications are very unstable; nevertheless, by using lyophilization to remove the solvent and residual moisture from the solute components, we may create a dry powder of that drug with long term stability [60].

NEW METHOD OF DOSING A DRUG (ORAL / PARENTERAL):

Nanogel:

Sometimes referred to as "hydrogel nanoparticles," nanogels go by a few other names. The hydrophilicity, flexibility, versatility, high water absorptivity, and biocompatibility of these particles, as well as all the benefits of nanoparticles, most notably their long life-span in circulation and the possibility of being actively or passively targeted to the desired biophase, *e.g.*, tumour sites, will be useful in the pharmaceutical industry [61]. Increasing the efficacy of herbal medicines and resolving issues sometimes encountered with them may one day be possible with the development of nanoscale drug delivery devices. Therefore, NDDS is very important in the context of conventional therapy for combating persistent conditions including asthma, hypertension, cancer, diabetes, and others. An efficient anticancer formulation including curcumin-encapsulating nanogel is produced [62].

Liposomes:

To put it simply, liposomes are lipid vesicles that are both amphiphilic and spherical [63]. In an effort to protect their hydrophobic groups from the aqueous environment, the amphiphilic phospholipid molecules create a closed bilayer sphere, with the hydrophilic head group remaining in touch with the aqueous phase. Phospholipid bilayer liposomes may encapsulate drugs with a broad range of lipophilicity [64].

DRUGS IN TOPICAL FORMS:

Tooth Pastes:

Herbal toothpaste, which often contains plant materials or plant derivatives, is designed to kill bacteria and strengthen teeth without irritating the gums or harming the teeth. It is generally accepted that using herbal toothpaste on a regular basis is risk-free [65]. Plus, certain herbal toothpastes may not include any of the following: sodium lauryl sulphate, parabens, fluoride source (NaF), chlorine source, or sodium saccharine. Herbal toothpaste has been given more attention for its function in preserving hygiene and avoiding dental pain [66].

Hair Dye:

Commercial synthetic hair colours often include a mix of peroxide and ammonia, which may damage hair's cellular structure and trigger allergic responses in certain people. It may also lead to dermatitis in the lip area, as well as redness and swelling in the scalp and face [67]. Synthetic dye users have an increased chance of acquiring non-lymphoma Hodgkin's and bladder cancer. Natural hair dyes may be made using standard methods. Hair dyes made from herbs are semi-permanent colours that have long been used because of the widespread belief that they are harmless and non-toxic [68]. Hair dyes, growth stimulants, and anti-aging agents found in plants have had a long history of traditional usage [69].

Face Pack:

A face pack is a fine powder used for the face. The facial pack is made from a number of different herbal components. They have a calming and soothing impact on the skin and are completely safe to use [70]. They alleviate skin-related allergic responses. A face pack has several benefits, including the cleaning of clogged pores, the revitalization of tired muscles, and the preservation of skin suppleness [71]. By removing dulling dead skin cells, face packs make the skin seem more radiant, supple, and youthful. Packing your face with natural ingredients is a lovely and ancient way to remove dirt and oil. Fair and clean skin may be attained organically with the use of herbal or poly-herbal face packs, which can be less expensive than other options while still being completely safe [72].

Vitamins included in natural face packs are essential to maintaining healthy skin and a radiant appearance. Depending on the herb or substance used, a face pack may be effective in minimising the appearance of acne scars, blemishes, and other markings. Using a face pack regularly helps delay the visible signs of ageing [73].

Hand Wash:

The skin is the body's most vulnerable organ, hence it must be guarded against infectious skin diseases. Alcohol-based sanitizers, chlorhexidine preparations, *etc*., are just a few examples of the many chemical antiseptics that may be purchased online or in stores. Skin irritation is one potential side effect of these soap solutions, and they have also been linked to

microbial resistance [74]. Anti-infective agents may be found in plants, and these antimicrobials found in plants offer a huge, untapped market for pharmaceuticals. Researchers have discovered that flavonoids and polypeptides from plants used in traditional medicine are effective against many different types of bacteria and viruses [75].

Gel:

The use of transparent semi-solid systems such pharmaceutical gels as medicinal topical formulations is on the rise. Long-term stability is not an issue. Their physical look is pleasing. They facilitate the quick absorption of medications and high rates of drug release when applied to the skin or mucous membranes [76]. Translucent gels are used for a variety of purposes; some examples are (a) anaesthetic gels, (b) lubricant gels, and (c) coal tar gels, which are used to cure psoriasis. Himalaya Drug Company produces a variety of herbal gels, including Himcolin (an herbal aphrodisiac gel for the penis) and V-Gel (herbal vaginal gel for vaginitis and cervicitis) [77].

Shampoo:

Shampoos are liquid, creamy, or gel-like treatments whose principal role is to clean the hair because of built-up sebum, dust, scalp debris, etc. [78] Natural cleaning agents like shikakai and reetha are used in herbal shampoos, and they don't have any negative side effects. Without causing any harm to the user, herbal shampoo may clean the hair shaft of excess oil, grime, and skin debris. It has been shown that herbal shampoos are both more effective and safer than their synthetic counterparts [79].

Aerosol:

Aerosols in the pharmaceutical industry are a kind of dosage form used to deliver drugs topically, intravenously, or inhaled via the lungs. A metered or continuous spray valve is used to seal the metal or glass container containing the dosage form [80]. Therapeutically active drugs in aerosol dose form are widely used because they may be inhaled via the mouth or nose. A portable and lightweight container facilitates usage and administration. The drug he needs is readily accessible, and the therapeutic effect occurs rapidly. There is now an aerosol spray called "Herbal Pain Relief Spray" that aims to alleviate pain naturally [81].

Sprays:

Aerosol pharmaceuticals that are applied topically are called sprays. When sprayed beneath the tongue they are called sublingual sprays. Sprays have aesthetic features, convenience of application, maintainability of sterility, tamper-proof system, prevention of contamination of the residual contents and greater stability. Medication may be delivered in consistent doses [82]. The local anaesthetics and antiseptics, germicidal and disinfecting products, protective gear, etc. found in these are employed as first aid. Oral sprays are meant to be sprayed either into the mouth or beneath the tongue. Many brands of mouth sprays are available for purchase. ‘Outer cure’ a herbal antibacterial aerosol spray is mainly created for the treatment of wound infections without any adverse effects [83].

PHARMACEUTICAL FORMULATIONS FOR EYE USE (DROPS, OINTMENTS, GELS, AND SUSPENSIONS):

As most ocular medications are water soluble, and drops provide for simpler administration, a lot of today's ophthalmic treatments come in that form. Ointments, gelled systems, and solutions are appropriate when a sustained therapeutic effect is sought [84]. Their physical and chemical stability, sterility, efficacy (providing a suitable quantity of medicine for the needed period), and homogeneity (particles evenly disseminated) make them an attractive option for ophthalmic usage [85]. The retention period of ophthalmic gels is enhanced in comparison to solutions, and the frequency of administration is lowered. Other benefits include high tolerability, the creation of a protective film over the cornea, and protection against conjunctival adhesions. Also, gels are sterile and won't irritate your skin [86].

Eye Drops:

Most topical medications are administered in the form of eye drops. The use of eye drops has few physiological effects on visual acuity. Many Unani Qatoor (drop) formulations are amenable to sterilisation and may be made into a standard eye drop. Ophthacare (herbal eye drop for optimal eye care) [87].

Suppository:

Rectal, vaginal, and urethral dose forms are solid or semisolid and are administered via those openings. Different suppositories come in a variety of forms and sizes to accommodate a wide range of situations and needs. Suppositories are a kind of medication that have historically been used for local applications and when other options for administering a drug were unavailable [88]. The greatest benefit of the suppository is the reduction in hepatic first-pass elimination that occurs when the medication is absorbed rectal. This dose form incorporates a broad variety of medications. Vaginal and urethral suppositories are effective in the treatment of localised infections. Herbal suppositories for the vaginal area often include a mixture of cocoa butter and either coconut or sesame oil together with the herbs. Sustained vaginal DHEA suppositories, herbal suppositories [89].

Ointments:

Ointments are a semisolid dosage form recommended for external application on the skin or mucous membranes, as stated in the United States Pharmacopeia. Ointments are not only useful for their therapeutic properties, but also for the soothing effect they have on the skin [90].

Face Powder:

Facial powder is a solid medication that may enhance the look of any skin tone by creating a smooth, velvety surface. One of

the cornerstones of the cosmetics industry is and always has been face powder. Applying face powder may help your skin seem better by concealing the shine caused by oil and perspiration production. It's possible to tailor face powder to suit every skin type (dry, normal, moderately oily and very oily) [91].

POWERFUL AYURVEDIC HERBS AND SPICES: [92]

1. Ashwagandha
2. Boswellia
3. Amla
4. Bibhitaki
5. Haritaki
6. Brahmi
7. Cumin
8. Turmeric
9. Licorice root
10. Gotu kola
11. Bitter melon
12. Cardamom

FORMS OF UNANI DOSAGE AND THE NEED FOR ALTERATIONS AND ENHANCEMENTS:

Recent developments in conventional medicine have highlighted the need of adjusting dose forms. The medication release time in the GIT is dependent on the quality of the binder and disintegrants used in the pill's construction. It is critical that any Habb in Qurs (Tablets) that do not meet pharmacopeial and regulatory analytical requirements be changed immediately [93]. The most common Unani dosage form, the tablet, requires the use of sophisticated techniques including granulation, drying, and compression to get the appropriate properties. Sharbat has to be prepared using advanced preservation techniques to counteract the sugar levels used for preservation, while Roghan (Oil) needs such techniques to offer a longer shelf life and prevent rancidity [94].

CONCLUSION:

The natural substances that Mother Nature gives to us in the form of a wide variety of medicinal herbs are subject to the same rule of nature that governs change. There is a significant degree of distinction and complexity between herbal and conventional medical goods that might assist us in leading healthier lifestyles. Since herbal products play an important part in our day-to-day lives, we should follow the current trend toward traditional and herbal goods. There is a tremendous need for new approaches that might address the issues that are now faced by a great number of traditional and herbal medicines. In order to supply the appropriate dosage forms, conventional and herbal pharmacies are now developing a large number of novel facts and trends. The purpose of this study is to investigate the current state of traditional and herbal medicinal products, as well as to identify emerging trends and potential avenues for improvement in the aforementioned areas, with the goals of enhancing the ease of administration, portability, and patient compliance. It is possible that herbal and traditional (Unani and Ayurvedic) medicines may be of greater benefit to those who are ill if their dosage forms were modified to meet the pressing requirements of the contemporary world. Granules, tablets with a quick dissolving time, sugar-free varieties, and other variants, as well as enhanced packaging techniques, are all possible possibilities. Therefore, in order for Unani and other types of traditional Indian medicine and its pharmacy to acquire lasting acceptance on a national and global scale, they need to quickly incorporate these trends.

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CONFLICT OF INTEREST: Nil

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