Review Article

Ayurveda: The Mystery of Life

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Ayurveda is a life science which explains about the different dosage forms, which is the physical form of a medication intended for administration. The different dosage forms can be prepared by the physician according to his yukti, considering samyoga, vishesha, kala and samskara[1]. Ayurveda is the system of medicine that evolved in India with a rational logical foundation and it has survived as a distinct entity from remote antiquity to the present day. The fundamental on which ayurvedic system is based are essentially true for all times and do not change from age to age[2]. There are different dosage forms which have been explained in books. These have been classified into different types such as aushadhakalpana, aaharakalpana, bahyaanadabhyaantarakalpana, solid, liquid and semisolid forms, as well as of plant, animal and mineral origin. These dosage forms are mainly intended to increase shelf life, palatability and to alter potency. These can be used both internally and externally[3].

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INTRODUCTION:
Ayurveda is a science of life. It is mainly based on the Trisutra, Hetu, Linga and Aushadhi. Among these aushadhi plays a major role in the treatment. Aushadhi acts as an aid for the other branches in ayurveda. Aushadhi is used to maintain a good health as well as to cure diseases in humans. It is mainly administered according to the condition and convenience of the patient. In ayurveda there is a description of different potency or efficiency of the drugs. It has been explained in classics for up to one year which seems to be suitable for preparing many recipes, should possess lesser in comparison to the tablets of allopathic system of medicine. Ayurvedic formulary of India (AFI) also has been specified some time period during which the formulation retains its efficacy. The longer stability in recent dosage forms is naturally the gift of the present packaging technology which was not much more developed in the ancient time. Also, the modern science has made some advances to control and regulate various aspects of pharmaceutical processing so as to minimize or even eliminate the drawbacks of ancient packing. Packing Of Ayurvedic Formulations:
As per the reference in charakasamhita, a drug should be packed in such type of bhajana (vessel/packaging media) which has anurupagunathat is the packing material should not interfere with the physical, chemical or biological property of the drug being packed inside. Beside this, some of the indications are found for the airtight packaging of churna, taila, etc. Types of preparations, in a new kalash (earthen vessel with broader body & narrow mouth) and storage in airtight and dark place. So, it has a great role in obtaining a product of suitable purity and potency because unsatisfactory packaging permits or fasten the degradation in the product. Any package must possess sufficient quality so that it can conquer the mechanical hazards like shock, compression, vibration, etc. And environmental hazards like temperature, moisture, light, infestation, contamination and exposure to oxygen. Unlike to the ancient era, great advances in design and development of packaging technology has developed packaging materials, which have requisite barrier properties to build stability of the formulations. Various packaging media are available that can be selected according to nature of product being packed inside. These includes metal foils especially aluminum, plastics, glass bottle with closures, tin packs, collapsible tube, rubber, paper and board. Certain photosensitive drugs must be protected from light. There are numerous types of transparent, opaque and coloured containers, available for packaging. Amber glass will usually screen out ultra violet radiation very effectively and is usually the colour recommended for protection from light.

Shelf Life Of Ayurvedic Dosage Form:
There is no idea about shelf life of different ayurvedic formulations in the classical texts before of 11th century ad. After about 12th ad, the scholars have provided a specified shelf life/stability period of different dosage forms. The kwatha, kalaka and swarasa are remain stable for up to one prahara (3 hrs) while churna (powder) formulation is having only 2-3 months of stability in its potency whereas nowadays, the airtight packed spices (turmeric, pepper, coriander, etc. Powder) are used comparatively for longer period. Also the stability period of the vati (pills) is mentioned to be up to one year which seems to be lesser in comparison to the tablets of allopathic system of medicine. Ayurvedic formulary of India (AFI) also has been specified some time period during which the formulation retains its efficacy. The longer stability in recent dosage forms is naturally the...
subjected from manufacturing up to its final application. Storage conditions are derived from real climatic situation\(^7\).

<table>
<thead>
<tr>
<th>Dosage form</th>
<th>According to Vangasen</th>
<th>According to Sharangdhar</th>
<th>According to Yogarantnakar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwatha</td>
<td></td>
<td></td>
<td>3 hours</td>
</tr>
<tr>
<td>Kalka</td>
<td></td>
<td></td>
<td>3 hours</td>
</tr>
<tr>
<td>Swarasa</td>
<td></td>
<td></td>
<td>3 hours</td>
</tr>
<tr>
<td>Vati</td>
<td></td>
<td></td>
<td>2 months</td>
</tr>
<tr>
<td>Ghrita and taila</td>
<td>6 months</td>
<td>16 months</td>
<td>12 months</td>
</tr>
<tr>
<td>Asava</td>
<td></td>
<td>Long term stability</td>
<td></td>
</tr>
<tr>
<td>Rasa</td>
<td></td>
<td>Long term stability</td>
<td></td>
</tr>
</tbody>
</table>

Pros And Cons Of Ayurvedic Dosage Form:

**Pros:**

- Safe and chemical free: since the medicines are made of natural ingredients and chemicals are not used, the harsh effects of chemicals do not affect the consumer.
- Complete cure: these medicines do not put a stop gap on the disease; they cure it in a way to prevent the reoccurrence of the disease. It aims in giving a long term cure for the disease.
- Improves health: consumption of these medicines not only cures the disease, but also improves overall health by improving metabolism, reducing stress and bringing tenacity.
- No operation: many people have the phobia of going under the knife. Ayurvedic medicines make sure that you do not have to get operated in situations like hemorrhoids, bone inflammation, gall bladder stones and removal of non-terminal tumor.
- Effective cure: there are several issues related to fields like gynecology, psychiatry, toxicology, nutrition, detoxification & rejuvenation, and fertility that have effective cures in this form of treatment and do not have any side effects.

**Cons:**

- There are several instances in today's world where a person might be given life support to be kept alive. Ayurvedic medicines can help in these situations and it has been seen that consumption of these medicines has worsened the condition of the patient.
- Ayurvedic medicines have a slow and gradual effect on the body generally.
- Since Ayurveda is highly focused on prevention, it doesn’t focus on treating diseases caused by bacteria and viruses.\(^{12}\)

How Ayurvedic Formulations Work On Body:

Ayurvedic practitioners believe that the body and the world around it is composed of and governed by three basic elements called tridoshas i.e vata, pitta, and kapha. These three are present in each person in varying levels, the functions and qualities of which define one’s unique abilities and characteristics, as well as determine how one should eat and live in order to maintain a proper balance.

Classical Ayurvedic Formulations:

- **Ark (distillation of herbs):**
  They are distillates of herb, they are extremely light in nature and very assimilate in the system. Eg. **Gulab Ark, Ajwain Ark.**
• **Asava And Arishta (natural Fermented Liquid):** These are prepared in the form of herbal juices or their decoction to undergo fermentation with the addition of sugar. These is a big difference between Asavas and Andarishta. The Arishtas are prepared by boiling of drug in water while, Asavas are prepared by using herbal juices. Eg.Arjunarishta, Ashokaarishta, Kumaryasava.

• **Avaleh (Jams / Paste Like Products):** It is semisolid preparation of herb prepared with addition of jaggery, juices or decoction. Eg.Chavanprash, Drakshvleh.

• **Bhasma:( Purified Calcination )** Bhasma are very fine ayurvedic medical powder prepared by the process of calcination. Calcination is the process in which heavy metals, minerals are heated at high flame and convert them into their oxidize. Eg.Abhrakbhasma, Godantibhasma, Pravalbhasma.

• **Churna (Powders):** These are generally raw herbs which are dried and finally powdered and then passed through different sieves to prepare fine powder and then mixed with other appropriate ingredients which are mentioned in ancient texts. Eg.Lavanbhaskarchurna, Sitopladicchurna.

• **Ghrita (Medicated Clarified Butters):** This process involved that cow’s milk is churned to obtain butter, which is heated at a temperature to obtain ghee. This ghee is then processed to produce ghrit. E.g. Amritghrit, Jatyadighrit etc.[13].

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**Table No: 1 List Of Ayurvedic Industries In India:**

<table>
<thead>
<tr>
<th>Name of industry</th>
<th>Year</th>
<th>Founders</th>
<th>Product</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandu pharmaceuticals ltd</td>
<td>1985</td>
<td>Bhaskarsandhu[16]</td>
<td>Granules, tablets, baby care etc.</td>
<td>Sandushatari, sandy corysan tablet, sandugulkand etc.</td>
</tr>
<tr>
<td>Patanjali Ayurved</td>
<td>2006</td>
<td>Baba Ramdev, acharya balkrishna</td>
<td>Food, beverages, personal care etc.</td>
<td>Patanjali soap, patanjali face cream etc.[20,21]</td>
</tr>
<tr>
<td>Himalaya</td>
<td>1930[22]</td>
<td>M manal[22]</td>
<td>Baby care, personal care, nutrition etc.</td>
<td>Himalaya face wash, himalaya cream, himalaya soap etc.[23]</td>
</tr>
<tr>
<td>Baidyanath</td>
<td>1917</td>
<td>Ram dayal joshi</td>
<td>Beauty care products, foods, medicinal oils etc.</td>
<td>Mahabhringraj tel, kesarikalp, chyawanprash etc.</td>
</tr>
<tr>
<td>Shree dhootapapeshwar ltd</td>
<td>1872</td>
<td>Vd. Krunshnastripuranik, vd. Vishnustripuranik</td>
<td>Bhasma, rasa, vati etc.</td>
<td>Agnikumar rasa, akeekpishti etc.</td>
</tr>
</tbody>
</table>
**Table No: 2 Different Ayurvedic Preparations Used For Some Diseases:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Ayurvedic dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone and joint health</td>
<td>Daburshilajit, shilajit gold capsule, vegorex-10cap etc.</td>
</tr>
<tr>
<td>Dibeties</td>
<td>Madhumehariyog 40tab, basant kusumakarras etc.</td>
</tr>
<tr>
<td>Eye health</td>
<td>Akikbhasma 5gm, badam pak 100gm etc.</td>
</tr>
<tr>
<td>Liver health</td>
<td>Giloysatva 40gm, hapasidsyurup etc.</td>
</tr>
<tr>
<td>Lung health</td>
<td>Drakshasav, kafkartariras 40tab etc.</td>
</tr>
</tbody>
</table>

**Table No: 3 Machinery Involved In Ayurvedic Preparations:**

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Category of medicine</th>
<th>Machinery/equipment used</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Pills/vati/gutikamatirai and tablets</td>
<td>Ball mill, mass mixer/powder mixer, granulator, drier, tablet compressing machine, pill/vati cutting machine, stainless steel trays/container for storage and sugar coating, polishing pan in case of sugar-coated tablets, mechanised chattoo (for mixing guggulu) where required</td>
</tr>
<tr>
<td>4.</td>
<td>Kupipakava/ksara/parpati/lavanabhasmasatva/sindurakarp u/uppu/param</td>
<td>Bhatti, karahi/stainless steel vessels/patila flask, multanimatti/plaster of paris, copper rod, earthen container, gaj put bhatti, muffle furnace (electrically operated) end/edgerunner, exhaust fan, wooden/s.s.spatula.</td>
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<td></td>
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</tr>
<tr>
<td>5.</td>
<td>Kajal</td>
<td>Earthen lamps for collection of kajal, triple roller mill, end runner, sieves, s.s.patila, filling/packing and manufacturing room should be provided with exhaust fan and ultra violet lamps.</td>
</tr>
<tr>
<td>6.</td>
<td>Capsules</td>
<td>Air conditioner, dehumidifier, hygrometer, thermometer, capsule filling machine and chemical balance</td>
</tr>
<tr>
<td>7.</td>
<td>Ointment/marhampasai</td>
<td>Tube filling machine, crimping machine/ointment mixer, end runner/ mill (where required) s.s. Storage container s.s.patila.</td>
</tr>
</tbody>
</table>

**Formulations Of Different Ayurvedic Preparations In Ayurvedic Formulary Of India:**

- **Asavas And Aristas:**
  *Explanation:* fermented self generated alcoholic formulation made by soaking the herb in sugar solution or jiggery with madhuka pushpa (madhuka longifolia (J.Konig) J.F.Macbr.) For a specified period of time.
  *Major constituent with application:* drakharista - vitisvinifera linn. As major ingredient. Urakshata – useful in chest injury

- **Arka**
  *Explanation:* A liquid preparation obtained by distillation of certain liquids or herbs soaked in water using the distillation apparatus.
  *Major Constituent With Application*: Ajamodarka-Apiumgraveolens as the main ingredient, which is used as a digestive.

- **Avaleha Or Leha And Paka**
  *Explanation:* These are semisolid preparations, prepared with the addition of jaggery, sugar, or sugar candy and boiled with prescribed juice of the herbs or its decoction.
  *Major Constituent With Application:* Kutajavaleha-major ingredient is holarrhenaantidysenterica, used to treat hyperacidity, anemia, and diarrhea.

- **Churna**
  *Explanation:* Powder Of Herb(s), where a single herb or combinations of herbs are made into a coarse powder
  *Major Constituent With Application:* Narasimhachurna - contains tinosporacordifoliamiers and semecarpusanacardium linn. As the main ingredients, used in the treatment of cough, phthisis, and fever.

- **Guggulu**
  *Explanation:* an exudate obtained from the plant commiphoraweightii. Preparation having the exudate as the main effective ingredient is known as ‘Guggulu’.
  *Major constituent with application:* kaisoraguggulu (contains mainly t. Cordifolianmiers) and kancanaraguggulu (contains mainly Bauhinia Variegata Linn.).
- **Ghritas (Snehakalpa):**  
  **Explanation:** Preparation in which ghee (Butter Derived from Milk) is boiled with prescribed decoction of drugs according to the formula as prescribed in ayurvedic text. This process ensures absorption of the active therapeutic principles of the ingredients used.  
  **Major Constituent With Application:** Asokaghrita is used in the treatment of pelvic pain, lower backache, and anemia and contains Saracaasoca De Wilde as the major herb.

- **Taila**  
  **Explanation:** preparations in which oil is boiled with prescribed decoction of drugs according to the formula. This process ensures absorption of the active therapeutic principles of the ingredients of the plant.  
  **Major Constituent With Application:** Prasarinitaila (major ingredient, Paederiafoetida Linn.) And bhringarajataila (major ingredient, Eclipta Alba Linn.).

- **Dravakas**  
  **Explanation:** Liquid Preparations Obtained From Lavanas (Rock Salts) And Ksaras by Distillation Process With Or Without Any Addition Of fluids.  
  Ksaras are alkaline substances obtained from the ash of drugs. The drugs are cut into small pieces, dried, kept in an earthen pot, and burnt to ash.  
  **Major Constituent With Application:** Sankhadravaka is used in treating diseases of the abdomen and spleen and contains Calotropisprocera R.Br. And Euphorbia Nerrifolia Linn. Along with other ingredients.

- **Lepa**  
  **Explanation:** Topical applications in the form of a paste. The drugs are made into a fine powder. Before use on the body, it is mixed with some liquid or other medium indicated in each preparation and made into a soft paste. Water, cow's urine, oil, and ghee are some of the media used for mixing.  
  **Major Constituent With Application:** Avalgujadilepa (contains Psoralea Corylifolia Linn.) And pathyadilepa (contains terminalia Chebula Retz. Along with other ingredients) are some of the examples of this category.

- **Vati And Gutika**  
  **Explanation:** Medicinal preparations in the form of tablets or pills. They are made of one or more drugs of plant, animal, or mineral origin. khadiradi gutika is an example to mention.  
  **Major Constituent With Application:** It contains Acacia Catechu. And is used in the treatment of halitosis, diseases of the teeth, and dental cavities (caries).

- **Varti,Netrabindu, Andanjana**  
  **Explanation:** preparations used externally for the eye.  
  **Major constituent with application:** Nalikeranjana (containing Berberis Aristata De and Glycyrrhizaglabralinn.) And Tamradi Gutika (containing Glycyrrhiza Glabralinn. And Saussurea Lappa C.B. Clarke along with other ingredients) are examples of this category.

- **Bhasma And Pishti**  
  **Explanation:** Bhasma -residue after incineration–calcined preparation. Pishti-(powdered gem or metal) along with appropriate herbs is Recommended for treatment of critical ailments  
  **Major Constituent With Application:** Louha Bhasma (ash made from iron) is the main ingredient of preparations like ‘lauha kalpas’.pishti-(powdered gem or metal) along with appropriate herbs is recommended for treatment of critical ailments.

- **Rasa Yoga:**  
  **Explanation:** contains mineral drugs as main ingredients, and it may be in pillor powder form.  
  **Major Constituent With Application:** ‘Amlapittantaka Rasa’(contains t. Chebula retz.) And ‘Anandahairava Rasa’(contains piper nigrum linn. And piper longum linn.).[26]

**CONCLUSION AND DISCUSSION:**  
In ayurveda there is an explanation of different dosage forms or kalpanas.it is mainly classified into two types; Aushadhakalpana and Aharakalpana. Anushadhakalpana and secondary kalpana. It can be again classified according to the state in which they are present i.e liquid ,semi solid, and solid.
All the *kalpanas* which have been mentioned. In ayurveda are mainly aimed at isolation of suitable active principles through different media like water, oil and *ghee*. These different aspects have to be considered in the preparation of formulations like *samyoga, vishlesai* i.e., combination and separation of different drugs keeping into consideration factors like *kala, smaskara* etc. The various *kalpana* as explained is formulated to achieve increased shelf life, increased potency and greater palatability along with its application of modern technology. I would like to conclude that the selection of the various dosage forms is left to the *yukti* of the *bhishak* as per the need of the patient. Thus, in the present scenario, one may consider the saviryata awadhi as an indicative of ‘best before use date. This is the time limit after which one or more properties of the formulations would have shown considerable changes/degradation which can be seen or perceived by the consumer/patients and lead to doubts about the quality of the product and ultimately on its efficacy. In the ancient when there was no industrialization and vaidyas themselves used to prepare drug in small scale for the treatment and the main objective of formulations, of a drug, is to achieve the desire action rather than secondary mean palatability or shelf life but in today in the era of globalization and large scale production, there is a need to re-determine the revised stability period of these kinds of ayurvedic formulations by following a suitable guidelines.

It is also required to conduct such type of study on each and every particular formulation separately as all the formulations are varying in their composition and each ingredient have some specific stability period which may ultimately affect the formulations([1,3]).

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