Introduction-
Rasashastra is the branch of Ayurveda having its roots in Indian Alchemy (form of chemistry studied in medieval period) which has been evolved with the Aim of betterment of life by eliminating diseases from body and maintaining the good health, with the Objective keeping in mind to convert mercury, metals & minerals in easiest form for better assimilation in the body. In the modern Ayurvedic practice the Rasashastra has been considered more useful and effective compared to herbal preparations. It is said that the Rasashastra has immense therapeutic applications some of which are prevention of ageing and reduction in age related disorders.

There are mainly four types of preparations or bandha of Parad (Mercury) 1) Kharaliya rasayan, 2) Parpati Rasayan, 3) Kupipakwa Rasayan and 4) Pottali Rasayan. Out of these Pottali Rasayan is the one which is distinctive in its way. It is widely known for its specific methods of preparation, unique end product, optimum potency, smaller dose and larger therapeutic application. Here we have tried to explain the process, types, manufacturing uses and importance of Pottali Rasayan in Nutshell.

Aims & Objectives-
To study the Pottali Rasayan; its brief history, types, manufacturing methods, uses, advantages and type of different Pottali kalpa from different rasagranth.

Material & Methods –
References were collected from various Rasa granthas and various journals. These references analyzed logically and results are drawn.

Review of Literature –
Consumption of impure Mercury will cause many diseases in the body. Therefore purified mercury should be used for all pharmaceutical preparations. Mercury or Parad is chanchal (Shiftiness), chapel(evasiveness) and Durgrahya (elusive) in nature, all these properties have to be remove before using Parad for any compound preparation and the procedure is called as Rasa Bandh (bond)

Parad murchhana is the act of imbibing definite therapeutic properties (Vyadhinashak Shakti) in purified Parad used in any of compound formulation (with or without gandhak).

Pottali kalpana is sagandha – sagni bandh (Bond) of Parad that means in the preparation of Pottali kalpana Gandhak (Sagandh) is mainly used along with Parad and the process of formulation is carried out in presence of Heat (sagni). Pottali Kalpana is stronger bond of Parad & Gandhak than Parpati Bandh. During formation of Parpati bandh Parad & Gandhak is processed in presence of Agni here in Pottali bandh Parad & Gandhak are also processed in presence of Agni but the procedure is...
little bit different which forms the more stronger bond than Parpati bandha and this is not only bonding of Parad & gandhak but some chemical processes also took place which further strengthen the physical properties and enhances the chemical properties of final product. Because of this kind of bonding Pottali Kalpana gives Sadhyophala (Instant in Action) in certain conditions like Moorccha, Sansyas, Apasmar, and Sandnya Nasha. Pottali kalpa are ready to use by just rubbing (preferably with Milk or Honey) and applying sublingually thus giving Quick results in very short span of time and in very small quantity. From the point of view of Rasashastra, Pottali Kalpana should be considered as separate kalpana of Metalloid- mineral drug evolved in order to keep multiple scattered components incompacty processed form.

The preservation and storage of prepared medicine and carrying it during visits was always a challenge in olden days the thought process to overcome this problem eventually lead to the innovation, development & growth of Pottali bandha or Pottali Rasayan.

History -
Pottali may be traced back from 12th century in book named Rasaratnakar written by Acharya Nityanath. Later in 13th century we find few more references and further in 14th century maximum number of Pottali kalpana are being explained by different books. The same legacy is continued in many books in later centuries.

Definition of Pottali –
videshta vyandasu abhihetavanam potam
potam latai guhayatii ini potarli

- पूट - Adhesion (संलेखण)
- पोट - Adhesion Or To give support
- पोटली - Minimize or concise

The concept developed to obtain the spread out material into a dense, tough and compact form is called as a Pottali kalpana.

Synonyms –
- Pottali
- Pottalika
- Packet
- Bundle
- Parcel

Different shapes of Pottali –
1) Shape of Stout cone
2) Shape of areca nut
3) Shape of Gutika
4) Drug in Wick form
Types of Pottali –

The major books which deals with the formulation of Pottali kalpana, explains their own method of preparation. Some popular methods are enlisted below –

1) Gandhak swedan method
2) Valuka yantra method
3) Kaparad puran method
4) Putapak method

Out of which we are going to see only first two methods as the final product achieved after both of these methods stands out for actual definition of Pottali.

Ingredients & instruments require for Pottali kalpa

- Parada, Gandhak, Lohadi varga
- Binding agents: Kumari swarasa, Babbula niryasa
- Cloth: Silk cloth
- Loha patra, mrittika patra/kharal
- Sulphur for paka
- Yantra: Valuka yantra, pottali pachan yantra, lavan yantra

Gandhak swedan method

Kajjali is prepared triturating all the mentioned drugs for 3-4 days. This kajjali is then triturated with any of the mentioned liquid/liquids. The drug mass is put together to give it a shape resembling either betel nut or stout cone, specified in preparation. This bolus has to be dried to attend desired hardness to stand with further processes. Then the bolus is tied properly in the silk cloth along with the gandhak to form a pottali and then this Pottali is immersed in an iron bowl containing liquefied Gandhak (Sulphur). Continues mandagni (Mild heat) is given to the bowl maintaining the temp. Just above the melting point of Gandhak (119.20°C) and below the boiling point (200°C). The heating is usually continued for 30-60 min. and meanwhile more gandhak is added as quantity depletes.

Valuka yantra method

This procedure is same as per procedure in gandhak drav swedan method up to the Pottali formation. After that the Pottali is placed right in the middle of either valuka yantra or lavan yantra and heat is applied continuously for three prahar (12 Hrs.) later when it cool down on its own the Pottali is taken out and the drug inside is stored.

Confirmatory test for Pottali formation –

a) Colour of melted gandhak turns to vyom/neelshyav (sky blue colour)
b) Pottali produces metallic sound
c) Cloth burns.

Later when the Pottali is self cooled it is taken out the gandhak surrounding and silk cloth is scraped out and the hard drug mass is collected, polished with silk cloth and stored in air tight glass container.
Examination of final product
   a) Metallic sound
   b) Hard
   c) Luster
   d) Shyav varna (grayish black colour)

Significance and positive aspect:
   ➢ Life saving remedy
   ➢ Easy to administrate drug
   ➢ Helps to tackle the acute condition
   ➢ Long shelf life
   ➢ Absorbs even from the tongue
   ➢ Easy to handle

General Indications:
   ➢ Kasa
   ➢ Shwasa
   ➢ Prameha
   ➢ Shukra dushti
   ➢ Moorccha
   ➢ Sanyas
   ➢ Apasmar
   ➢ Pradara
   ➢ Rajayakshma
   ➢ Grahani
   ➢ Mootrakrichra
   ➢ Mootradaha
   ➢ Jwara

Common Anupan Dravya for Kottali kalpana
   ➢ Breast milk
   ➢ Milk
   ➢ Ghrith
   ➢ Nagvelli patra swaras
   ➢ Honey
   ➢ Ardraka swarasa

Mode of administration of Pottali kalpa
   Mostly Pottali is rubbed against the hard stony surface along with milk, or small quantity of water and the paste form is administered orally or sublingually or sometimes directly rubbed over the talu (scalp) through hole made over talu Pradesh for faster absorption.

Conclusion:
   Pottali kalpana is the unique Rasashastriya formulation. It is very concise form of medicine with unique properties of strongest bond of Parad & gandhak, easy for handling, easy to store and used in the emergency conditions with easy and fastest mode of action. Unfortunately now days it has not been used widely despite of its significant & positive aspects. Thus further study of its physico-chemical analysis, standardization of procedure, mode of action will be definitely add to for therapeutic values emergency Ayurvedic medicine.
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5. Parad vigyaniyam page 168
7. Hiranya garbha Pottali 634, Rasyogsara. part II
8. Text book of Rasashastra, chaukhamba surabharati prakashan, Varanasi, Dr. Ravindra Angadi chapter 13, First Edition page 159