A REVIEW ON SIDDHA DRUG ANDA ODU AND ITS VARIOUS PREPARATIONS

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INTRODUCTION:

The Siddha system of medicine is one of the traditional medical systems of India. It is founded on four fundamental principles: *Vatham, Vaithiyam, Yogam, and Gnanam*. Medicines in Siddha are categorized into 64 types, broadly divided into internal (32 types) and external (32 types) formulations. The raw materials employed in this system are classified into three groups: *Thathu Porul* (metals and minerals of terrestrial origin), *Thavara Porul* (plant-derived sources), and *Sangama Porul* (animal-derived sources) [1].

Parpam (Neeru or Venneeru) is a traditional calcined preparation obtained from metals, minerals, or salts through specific pharmaceutical techniques. The raw materials are finely pulverized and subjected to *Pudam*, a controlled heating or calcination process, followed by roasting, incineration, or exposure to bellows-induced combustion [2]. During these procedures, the substances are repeatedly processed with herbal extracts or *Seyaneer* (alkaline, acidic, or specially prepared liquid media). This sequence of treatments facilitates the transformation of the raw materials into a stable, bioavailable white ash form. In modern pharmaceutical terminology, these processes are analogous to calcination, incineration, and trituration, which are employed to convert raw metallic and mineral substances into fine, stable oxides or carbonates with enhanced therapeutic safety and bioavailability. Notably, Siddha literature describes *Parpam* as possessing a half-life of approximately 500 years, indicating its claimed stability and durability when properly prepared [3].

Among these, egg shell is utilized as a raw material for both internal and external therapeutic applications, either in its natural form or after processing into formulations such as *Parpam, Chunnam, and Mathirai. Anda Odu*, is recognized as one of the *Sangama Porul* (animal-based substances) and also classified under *Thaathu Porul* (metals and minerals) within the category of *Iyarkai Ubarasa Porul* (naturally occurring substances) [4]. In traditional medicine, eggshells from Indian country chickens are primarily used in medicinal preparations, with literature suggesting that hatched eggshells offer superior efficacy as a raw medicinal ingredient. In modern medicine studies conducted by Ruff et al.**,** supplementation with egg shell membrane demonstrated improvements in joint pain. In the single-arm trial, flexibility increased by 27.8% at seven days and 43.7% at 30 days, while general pain and range-of-motion pain decreased by 72.5%

and 75.9%, respectively. In the double-arm trial, both treatment groups showed significant pain reduction at seven days (18.4% and 31.3%), with continued improvement to 30.2% at 30 days. No adverse events were reported, and the treatment was well tolerated by participants [5].

In the Siddha system, *Anda Odu* is utilized in the formulation of *Parpam and Chunnam*, two types of medicine. Specifically, *Anda Chunnam* serves as a foundational component in the preparation of P*arpam, Chunnam, and Chenduram*, contributing to their therapeutic properties. Additionally, *Anda Odu* plays a significant role in *Vaatham Murai* (alchemy), further highlighting its importance in traditional healing practices [6].

MATERIALS AND METHODS:

The data was collected through an extensive review of various literature and electronic data bases. All the articles were included based on the study related on egg shell.

RESULTS:

Purification of eggshells:

The purification of eggshells (*Anda Oduth Thooymai*) is an essential preliminary step in Siddha medicine to enhance their therapeutic efficacy.

- In this process, the shells of hatched hen's eggs are subjected to boiling in water mixed with *Appalakkaram* (sodium carbonate), which facilitates the removal of the adherent inner membranes. The cleaned shells are then thoroughly rinsed with fresh water to eliminate impurities, followed by drying under direct sunlight to ensure complete moisture removal. Once dried, the shells are finely powdered, sieved through a cloth to obtain uniform particle size, and preserved in crystal containers to maintain purity [3].
- Dissolve the Kariyuppu in water and soak the Egg shells in the supernatant of this solution for one day. Boil it on next day and then wash effectively to eliminate membranous layer in it [7].
- Burn the Egg shell in solution of fuller's earth for 3 hours (1 Saamam) and remove the membranous layer. Then dry it in sunlight to get the purified shells [8].

The purified eggshell thus obtained can be further processed into *Parpam* (calx) or *Chunnam* (lime), which are considered to possess superior potency and therapeutic properties within traditional medicinal applications.

1. Preparation of Eggshell Lime (*Anda Chunnam*):

The preparation of *Anda Chunnam* involves the use of purified eggshell powder (*Anda Thooymai*), as described earlier. A required quantity of the purified eggshell powder is taken and combined with the whole plant juice of *Nanjarruppan* (*Tylophora asthmatica*) in sufficient amounts.

Procedure: The eggshell powder is placed in a stone mortar (*kalvam*) and triturated with the selected herbal juice, added gradually, for approximately eight *jaamam* (a traditional time measure, ~24 hours). Prior soaking of the eggshell powder in the herbal juice for four to five days before trituration is considered ideal, as it enhances the process. Prolonged trituration is believed to improve the quality of the final product. After trituration, the paste is made into small cakes, dried, and then sealed with clay in an earthen vessel. The vessel is subjected to controlled calcination (*pudam*) with a heat equivalent to cow-dung cakes weight is five hundred time from sealed earthen vessel. After cooling, the product obtained is *Anda Chunnam* (eggshell lime).

Dosage: 1/2 to 2 *kunri* weight (65 - 260mg).

Adjuvants (*Anupanam*): Ghee, honey, *Panchadeepakini ilagam*, dry ginger powder (*chukku thool*), and fennel seed powder (*sombu thool*), among others.

Therapeutic Uses: *Anda Chunnam* is indicated for the treatment of various *vaayu* disorders, including *Anda Vaayu* (testicular neuralgia), testicular swelling, and testicular pain, thereby serving as a potent medicine in the Siddha system.

2. Preparation of Eggshell Calx (*Anda Parpam*):

The preparation of *Anda Parpam* begins with purified eggshells, taken in a quantity of 2 *palam* (approximately 70 g). The powdered eggshells are placed in a shallow earthen pan like vessel (*agal*), covered with an upper earthen lid (as same of bottom), sealed with clay-smeared cloth, and dried. This sealed apparatus is subjected to calcination (*pudam*) using 160 *palam*

(approximately 5600 g) of dried cow-dung cakes. Upon completion of the heating and subsequent cooling, the product obtained is *Anda Parpam* (eggshell calx). Alternatively, the eggshell powder may be placed inside a closed crucible (*moosai*), sealed at the mouth with a clay-coated cloth, dried, and subjected to calcination in a furnace until the crucible becomes red-hot. After cooling, the resultant white calx is collected as *Anda Parpam*.

Dosage: 2 to 4 *arisi edai* (130 - 260mg).

Adjuvants (*Anupanam*): Butter, milk cream, honey, and betel leaf.

Therapeutic Uses: *Anda Parpam* is indicated in the treatment of seminal disorders, including oligospermia, premature ejaculation, and *Anda Vaayu* (testicular neuralgia). It is valued in Siddha medicine for its rejuvenative and strengthening effects on male reproductive health.

3. Preparation of Eggshell Calx – Alternative Method (*Anda Parpam Veru*):

For this preparation, a required quantity of purified eggshell powder is taken and placed in a porcelain bowl. Fresh lemon juice is added until the powder is submerged to a depth of approximately four inches. The bowl is then exposed to sunlight until the juice dries completely. This process of soaking in lemon juice and drying is repeated seven times. After the final drying, the treated powder is placed in a shallow earthen pan (*agal*), covered with an upper lid, sealed with ten layers of clay-coated cloth, and dried. The sealed apparatus is then subjected to calcination (*pudam*) using 120 *palam* (approximately 4200 g) of dried cow-dung cakes. Once cooled, the product obtained is *Anda Parpam* (eggshell calx). If the final preparation is not perfectly white, the calcination process is repeated to yield a purified white calx.

Dosage: 2 to 4 *arisi edai* (130 - 260mg).

Adjuvants (*Anupana*): Butter, milk cream, ghee, or honey.

Therapeutic Uses: This formulation is indicated for the management of seminal disorders such as oligospermia and premature ejaculation, promoting *dhatu vriddhi* (augmentation of vital essence). It is also beneficial in conditions like *ozhugu* (chronic discharge), *megam* (urinary abnormalities), *vellaiozhugu megam* (white discharge), tighten a loosened vulva/vaginal muscles,

and gynecological ailments such as leucorrhea and chronic vaginal discharge (*karuppa megam*). Additionally, it strengthens the pelvic region and improves reproductive health in women.

4. Preparation of Eggshell Calx (*Anda Parpam* – Seven-time *Pudam* Method):

For this preparation, 2½ *palam* (approximately 87.5 g) of purified eggshell powder (*Anda Thooymai*) is taken in a stone mortar (*kalvattai*). Fresh lemon juice is gradually added, and the mixture is triturated continuously for two *jaamam* (~6 hours). The paste is made into small cakes, dried, and placed inside an earthen vessel (*oottu*), covered with an upper lid, and sealed with five layers of clay-coated cloth. This sealed vessel is subjected to calcination (*pudam*) using 80 *palam* (approximately 2800 g) of dried cow-dung cakes. After cooling, the calcined product is powdered again in a mortar, mixed with fresh lemon juice, and re-triturated. The process of cake-making, drying, sealing, and calcination is repeated in the same manner. When this cycle of calcination is performed seven times consecutively, a highly purified and potent *Anda Parpam* (eggshell calx) is obtained.

Dosage, Adjuvants, and Therapeutic Uses: The dosage, supporting adjuvants (such as butter, ghee, milk cream, honey, etc.), and therapeutic indications (management of seminal disorders, reproductive ailments, and related conditions) remain the same as described for earlier preparations of *Anda Parpam*.

5. Preparation of Eggshell Calx – Alternative Method (Anda Parpam with Aloe Vera):

In this method, purified eggshell powder (*Anda Thooymai*) is processed in the same manner as the earlier preparations, except that fresh juice of *Sotru Kattralai* (*Aloe vera*) is used as the medium for trituration. The eggshell powder is repeatedly triturated with *Aloe vera* juice, formed into cakes, dried, sealed, and subjected to seven successive cycles of calcination (*pudam*). The final product obtained is *Anda Parpam* (eggshell calx).

Dosage, Adjuvants, and Therapeutic Uses: The dosage (2–4 *arisi edai*), adjuvants (butter, ghee, milk cream, honey, etc.), and therapeutic indications (seminal weakness, premature ejaculation, reproductive disorders, urinary abnormalities, and gynecological ailments) remain the same as described in the previous methods of *Anda Parpam*.

6. Preparation of Eggshell Calx – Alternative Method (Anda Parpam with Lingam):

According to the method described in *Anuboga Vaithiya Navaneetham* (Part III, Method 393), *Anda Parpam* (eggshell calx) prepared by any of the earlier methods is taken in the quantity of 1½ *palam* (≈ 52.5 g). To this, *Lingam* (purified mercury sulfide, ≈ 13.5 g or 3¼ *varagan edai*) is added. The two ingredients are placed in a stone mortar (*kalvattai*) and triturated together with fresh *Aloe vera* juice (*kattralai saaru*), added gradually, for two *jaamam* (~6 hours). The paste is then made into small cakes, dried, placed in an earthen vessel (*oottu*), sealed with an upper lid and five layers of clay-coated cloth, and subjected to calcination (*pudam*) using 250 *palam* (≈ 8750 g) of dried cow-dung cakes. After cooling, the final product obtained is a potent form of *Anda Parpam*.

Dosage: 2–4 *arisi edai* (130 - 260mg).

Adjuvants (Anupana): Butter, ghee, milk cream, or honey.

Therapeutic Uses: This preparation is believed to promote *dhatu vriddhi* (increase the Sperm count) and strengthen seminal viscosity/semen consentration (*vindu azhutham*). It is indicated in conditions such as seminal weakness, premature ejaculation, and nocturnal emissions. Moreover, it is described as highly beneficial (*comparable to Sanjeevini*) in disorders associated with excess body heat and cooling-related ailments.

Note: In this method, any of the previously prepared varieties of *Anda Parpam* may be combined with *Lingam* and processed as per the described procedure to obtain the therapeutic formulation.

7. Preparation of Eggshell Calx – Alternative Method with *Nir Mulli* (Anda Parpam Veru):

For this method, purified eggshell powder (*Anda Thooymai*) is taken in a quantity of 1 *palam* (≈ 35 g). Sufficient fresh juice of *Nir Mulli* (*Hygrophila auriculata*) is used as the medium.

Procedure: The eggshell powder is placed in a stone mortar (*kalvattai*) and triturated with *Nir Mulli* juice, added gradually, for four *jaamam* (~12 hours). The resulting paste is shaped into small cakes (*villai*), dried, and placed in a sealed earthen apparatus, covered with clay-coated cloth, and subjected to calcination (*pudam*) with 60 *palam* (≈ 2100 g) of dried cow-dung cakes. After cooling, the product is powdered, again triturated with *Nir Mulli* juice for four *jaamam*, dried, and subjected to a second calcination using 50 *palam* (≈ 1750 g) of cow-dung cakes. The process is

repeated a third time with 40 *palam* (≈ 1400 g) and a fourth time with 30 *palam* (≈ 1050 g) of cow-dung cakes. After the fourth cycle of calcination, a highly refined *Anda Parpam* is obtained.

Dosage: ¼ to ½ *Kunrimani edai* (32 - 64mg).

Adjuvants (Anupana): Butter, milk cream, betel leaf, and honey.

Therapeutic Uses: This formulation is indicated for chronic respiratory ailments such as asthma, long-standing cough, hemoptysis (*kural kakkal*), and pulmonary tuberculosis (*saya noi*). It is also beneficial in seminal weakness, premature ejaculation, postpartum abdominal masses, and gynecological conditions including leucorrhea (*vellaimegam*) and chronic vaginal discharges. Furthermore, it restores tone to the uterus and vulva, strengthening loosened pelvic structures. The medicine promotes *dhatu vriddhi* (augmentation of vital essence) and enhances seminal strength. In clinical practice, the therapeutic potential of *Anda Parpam* can be enhanced by combining it with suitable formulations such as *ilagam*, *chooranam*, or *sarbathu*, tailored according to the disease condition. Physicians are able to easily verify its superior efficacy through regular therapeutic use.

8. Preparation of Eggshell Calx – Alternative Method with Rice Vinegar (Anda Parpam)

In this variation, hen's eggshells are first soaked overnight in *Kaadi* (rice vinegar). By the next morning, the softened shells are removed, and the adhering membranes are carefully peeled away. The cleaned shells are then placed in a fresh earthen pot, and fresh juice of *Sotru Kattralai* (*Aloe vera*) is added in a proportion eight times the weight of the eggshells. The mouth of the pot is sealed with a cloth, coated with five layers of clay (*seelai man*), and dried. The sealed vessel is then subjected to calcination (*pudam*) with cow-dung cakes weighing twenty times the sealed vessel. After cooling, the product obtained is *Anda Parpam* (eggshell calx). If the final preparation is black instead of pure white, a repeat calcination performed in the same manner yields the desired white calx.

Dosage: Up to 1 *Kunrimani edai* (130mg.).

Adjuvants (Anupana): *Sarbathu* (Sugar syrup) prepared from *Aadathodai* (Justicia adhatoda), decoction of *Aadathodai* leaves, butter, milk cream, and honey.

Therapeutic Uses: This preparation is particularly effective in the treatment of respiratory diseases, including pulmonary tuberculosis (*saya noi*), chronic cough, and persistent respiratory disorders.

9. Preparation of Eggshell Calx – Alternative Method with Mineral Combination (Anda Parpam Veru):

In this method, purified eggshell powder (*Anda Thooymai*), *Vediuppu* (sodium carbonate), *Padikaram* (alum), and *Annabedhi* (ferrous sulfate) are each taken in equal quantity, 1 *palam* (≈ 35 g). Sufficient juice of *Kaiyanthakari* (*Eclipta prostrata*) is used as the medium.

Procedure: All four ingredients are placed in a stone mortar (*kalvattai*) and powdered well. The mixture is then triturated gradually with *Kaiyanthakari* juice for four *jaamam* (~12 hours). The paste is shaped into small cakes (*villai*), dried, placed in a sealed earthen apparatus, and subjected to calcination (*pudam*) using cow-dung cakes weighing ten times the content inside. After cooling, the calcined product is powdered, triturated again with *Kaiyanthakari* juice for four *jaamam*, dried, and subjected to a second calcination in the same manner. The process is repeated for a third cycle.

After three calcinations, a reddish *Anda Parpam* is obtained. If a satisfactory product is not achieved, one or two additional calcinations may be carried out, after which a superior-quality calx is obtained.

Dosage: ½ to 1 *Kunrimani edai* (≈ 65–130 mg).

Adjuvants (Anupana): Honey, butter, milk cream, decoction of *Aadathodai* leaves, *Aadathodai* sarbath, and *Pirandai* powder.

Therapeutic Uses: This preparation is indicated for the treatment of various forms of Respiratory disease with emaciation (*ezhu vagai kasam*) and six types of haemorrhoids (*aru vagai moolam*). It is considered a potent remedy in chronic respiratory and anorectal disorders.

10. Anda Nīr (Egg Essence Water) is prepared using burnt hen's eggshells. These shells are first boiled in water containing dissolved borax (*Appalakkāram*) in order to loosen and remove the thin inner membrane. After this, the shells are washed thoroughly in clean water, dried completely in sunlight, and ground into a fine powder, which is then sieved through a cloth for purification. The

purified eggshell powder is taken in one part, to which half part of ammonium chloride (*Nāvacāram*) and one-quarter part of rock salt (*Induppu*) are added. This mixture is placed in a stone mortar, and medicated distillate water (*Sāra Vīriya Nīr*) is gradually incorporated while grinding continuously for about four *sāmam* (approximately twelve hours) until a smooth paste is obtained. The ground material is then transferred into a glass vessel and placed inside a specially prepared *Cey Nīr Kuzhi* (essence extraction chamber). By following the traditional *Cey Nīr* method, the material undergoes transformation and yields the preparation known as Anda Nīr. This essence water is not used directly as a medicine but serves an important role in subsequent alchemical procedures, especially for Kattu and stabilizing certain substances in both *Rasavāda* (alchemy) and medicinal formulations.

11. **Preparation of Eggshell Lime with Cuttlefish Bone (Anda Chunnam):**

In this method, hatched hen's eggshells are first purified (*Thooymai*), dried, and powdered. A quantity of 4 *palam* (≈ 140 g) of this powder is taken and combined with 4 *palam* (≈ 140 g) of powdered *Kadal Nurai* (cuttlefish bone).

Procedure: Both powders are placed in a stone mortar (*kalvattai*) and triturated for one hour. The mixture is then transferred into a crucible (*moosai*), sealed at the mouth with cloth and clay (*seelai man*), and dried. Additionally, the crucible is coated externally with three layers of clay-smeared cloth for extra protection. The drug mixture should occupy only half the capacity of the crucible. The sealed crucible is then placed in a furnace (*ulai*) and subjected to continuous heating by means of two iron blow-pipes for six hours. During this process, the crucible must be rotated periodically to prevent damage and ensure uniform heating. A laboratory-grade crucible is considered most suitable; otherwise, a specially prepared clay crucible (*vayira moosai*) may be used. After completion of the heating, the crucible is not broken but left undisturbed to cool naturally overnight. On the following day, the crucible is opened, and the contents are transferred to a porcelain dish. The material is then exposed overnight to dew, after which it blossoms into fine *Chunnam* (lime).

Applications: The product may be administered internally as a medicine. When processed into a strong pungent liquid (*Seyanīr*), it possesses wide-ranging therapeutic applications, which are described in various classical sources

12. Preparation of Eggshell Lime (*Anda Chunnam* - Alternate Method)

Raw material: Hatched hen's eggshells are first purified (*Thooymai*), dried, and finely powdered.

Procedure: The powdered eggshell is placed in an earthen pot (*mann kalayam*). The mouth of the pot is sealed with cloth smeared in clay (*seelai man*) to ensure airtight closure. The sealed pot is then buried in fire (*neruppu*) under mild heat for one full day. After the heating is completed, the pot is allowed to cool naturally. The product is then taken out, powdered, and preserved. The resultant substance is *Anda Chunnam* (eggshell lime).

13. Preparation of Eggshell Lime (*Anda Chunnam* – Alternate Method with Lemon and Ginger Juice):

Ingredients: Fresh lemon juice extracted from 4 to 5 ripe lemons, filtered to remove pulp and seeds. Fresh ginger juice, about 1–2 *Varagan* weight (≈ 4–8 g), mixed with the lemon juice. Purified hen's eggshells.

Procedure:

- The filtered lemon juice is mixed with fresh ginger juice and exposed to sunlight for two *saamam* (≈ 6 hours).
- Purified eggshell powder is then added to this juice mixture and kneaded thoroughly until it attains a semi-dry consistency.
- The mixture is transferred into a large crucible (*moosai*). The mouth of the crucible is sealed with cloth and layered with five coats of clay (*seelai man*). Additionally, three coats of clay are applied externally over the crucible for reinforcement.
- The sealed crucible is dried and placed in a furnace. It is subjected to continuous heating for two *saamam* (≈ 6 hours) using double bellows (*irattai thuruthi*). During firing, the crucible is carefully rotated at intervals to avoid cracking or breakage.
- After the calcination process, the crucible is allowed to cool naturally. The product is then transferred to a porcelain vessel and exposed to air for further cooling.
- Finally, the material is powdered finely and stored safely in a crystal jar.

Product: The final product is *Anda Chunnam* (eggshell lime), prepared through lemon–ginger mediated calcination.

Applications: When processed into *Sei Neer* (alkaline extract), this formulation is indicated for therapeutic use. Internally administered with suitable adjuvants, it is said to alleviate various types of *vaayu* disorders and *Prameham* (urinary/metabolic diseases).

14. Preparation of Eggshell Lime (*Anda Chunnam* – Alternate Method with Latex Medium)

Ingredients:

- Purified hatched eggshells.
- Latex of white-*erukku* (*Calotropis procera*) or country *erukku* (*Calotropis gigantea*).

Procedure:

- The hatched eggshells are purified as per the standard method and placed in a stone mortar.
- Latex of *erukku* is added gradually, and the mixture is triturated continuously for four *saamam* (≈ 12 hours) until a smooth paste is obtained.
- The paste is shaped into small flat cakes (*villai*) and dried thoroughly.
- The dried cakes are placed in a pit furnace (*agal*) and covered with an upper stone lid. The lid is sealed with three layers of clay (*seelai man*).
- A *Kesapudam* (intense calcination pit-firing), with about 1000 dried cow-dung cakes (viraatti) providing heat of approximately two arm's depth, is carried out.
- After complete calcination, the setup is allowed to cool naturally.
- The final product obtained is a pure white lime(*chunnam*).

Applications:

Highly suitable for *Rasavadam* (alchemy/iatrochemistry) preparations. Claimed to be effective against several chronic and stubborn diseases due to its high degree of purification and potency.

15. **Eggshell Lime (*Anda Chunnam* – Alternate Method)**

Procedure: Hatched hen's eggshells are first purified according to the standard method. The required quantity of shells is then placed in a stone mortar and triturated with the latex of *Calotropis gigantea* (country erukku) or *Calotropis procera* (Vellai erukku) for four *saamam*

(approximately 12 hours) until a fine paste is obtained. The paste is shaped into flat pellets (*villai*), dried, and placed in a pit furnace (*agal*). The furnace is covered with a stone lid and sealed with three successive layers of clay (*seelai man*). A *Kesapudam* (intense calcination process) is performed, in which a large pit is packed with about 1000 dried cow-dung cakes, providing heat equivalent to a depth of two cubits. After complete firing, the system is allowed to cool naturally. The final product obtained is a pure white lime (*chunnam*).

Applications: This form of lime is considered highly suitable for *Rasavadam* (iatrochemical / alchemical practices) and is regarded as particularly effective in treating chronic and refractory diseases.

16.**Preparation of "*ANDA PARPAM*".**

- Purified *Anda Odu* (Egg shell)
- *Biramaathandu ilai chaaru* (*Argemone Mexicana* L.)
- *Katrazhai Chaaru* (*Aloe vera* (L.)
- *Kandankathiri* Seeds (*Solanum virginianum* L.)

The desired quantity of egg shells – 90gm will be taken and soaked in salt water for three days. The inner membrane of the egg shells will be removed, powdered and stored in a ceramic vessel. It is then immersed in the *Brahma Thandu* juice 30 cm above the powdered egg shell and placed in sunlight until it gets dried. The powdered shell soaked in *Brahma Thandu juice* is then transferred to a mud pot sealed with another mud lid and sealed in a clay mixed thin muslin cloth. It will be subjected to an incineration process with dried cow dung cakes of about 1200 gm and stored in another ceramic container after it has cooled off. The above process is repeated the same with *Aloe vera* juice extract and will be brought to the incineration process. After it has cooled off it is then transferred to a new ceramic container and an equal quantity of *Kandankathiri* seeds are added to it and *Brahma Thandu* juice will be added to it such that it is 30cm above the mixture. It will be then dried in sunlight, followed by the incineration process. The final compound of the desired drug is then finely powdered and stored in an airtight container.

Medicinal Uses: rapid relief of

Naalpatta Irumal (chronic cough)

Suvasakasam (bronchial asthma)

Dose: 3 *Arisi Edai* (195 mg)

Adjuvant: Betel leaf (*Piper betle*)

17. Eggshell Lime (*Anda Chunnam* – Alternate Method)

Ingredients (equal proportions):

- *Saviiram* (Mercuric chloride)
- *Rasakarpooram* (possibly sublimated camphor-like compound)
- *Vediuppu* (Potassium nitrate)
- *Poonīr* (Fuller's earth) - Each taken in the proportion of 1 *varagan (4.1gm)* weight.

These four ingredients are finely powdered and mixed with the juice of 50 lemons. To this mixture, 10 whole hen's eggs are added and kept in sunlight, turning them frequently until the lemon juice evaporates completely. The dried mixture is then ground in a mortar with the juice of *kuppaimeeni* added gradually, and triturated continuously for four *saamam* (about 12 hours). The mass is made into flat pellets (*villai*), dried thoroughly, placed in a pit furnace (*agal*), covered with 5 layers of clay seal (*seelai man*), and subjected to calcination (*pudam*) using 50 cow-dung cakes, each weighing about 50 g. After cooling, the product is reground with *kuppaimeeni* juice, triturated again for 4 *saamam*, made into pellets, and subjected to a second cycle of calcination in the same manner. The final product is powdered and stored in airtight glass bottles. Ten hen's eggs are carefully perforated, and the egg whites are collected separately. Into each egg, about 4 *kunrimani* weight (260–270 mg approx.) of the previously prepared lime is added. The eggs are then placed in a small vessel, completely immersed in *kuppaimeeni* juice, covered with a lid, and sealed with 5 layers of clay. The whole apparatus is subjected to *Kesapudam* (intensive calcination with about 1000 cow-dung cakes). After cooling, the eggs are broken open, and the product obtained is considered a potent, highly refined form of eggshell lime (*chunnam*).

Therapeutic Applications: This preparation is described as effective for disorders related to both *Vatam* (Alchemy) and *Maruthuvam* (Medicine). The process is considered advanced, and only well-trained experts are expected to carry out this specialized preparation.

18. Eggshell Lime (Anda Chunnam – Alternate Method)

Cleaned and purified eggshells are taken in sufficient quantity and placed in a vessel. To this, the freshly extracted root juice of *Nanjarruppan* or *Vishappalai* (toxic species of *Euphorbia*, producing milky latex) is added until the shells are completely immersed. The mixture is thoroughly stirred and allowed to stand for 4–5 days. After this, the material is transferred to a mortar, and the same latex is added little by little during 8 saamam (approximately 24 hours) of trituration. The longer the trituration, the finer and more potent the product becomes. The mass is then made into thin discs (*villai*), dried, and subjected to calcination (Kesapudam): the dried pellets are placed in a pit furnace (*agal*), covered with an upper vessel (*melagal*), sealed with layers of clay (*seelai man*), dried, and exposed to a high-temperature cow-dung fuel combustion. The resulting product is a purified white lime (calcium oxide/calcium carbonate) preparation. If necessary, the process can be repeated with fresh latex and a second cycle of calcination, which yields a highly calcined (*kadunkaaram*) form of lime.

Therapeutic Applications:

- This *chunnam* is employed both in *Rasavatham* (alchemy) and *Maruthuvam* (medicine).
- Externally: A small quantity mixed with water is applied on a fine cloth and tied over swollen testicles (orchitis, hydrocele, or scrotal swelling) at night. With repeated applications, the swelling subsides gradually, restoring the testes to their normal size. The text further claims that lost virility (male potency) can also be regained.
- Internally: When taken with suitable adjuvant medicines, this preparation is said to be effective in asthma (*iraippu noi*).

19. Eggshell Extract (Anda Seiyaneer)

Step 1 – Preparation of Eggshell Lime (Chunnam):

- Raw material: 1 *palam* (≈ 35 g) of purified, hatched chicken eggshells.
- The shells are triturated (*kalvattu*) with egg white, added little by little, for 4 saamam (≈ 12 hours).
- The paste is made into discs (*villai*), dried thoroughly in sunlight without retaining internal moisture, and placed in a sealed earthen crucible.

- The crucible is covered, coated with 3 layers of clay (seelai man), and subjected to calcination in a square pit furnace (1 muzhum in dimension).
- After cooling, this yields eggshell lime (chunnam).

This *chunnam*, prepared by any of the previously described methods, can now be used for *seiyaneer* preparation.

Step 2 – Compound Lime Preparation:

- Ingredients:
    - *Vediyuppu Kattu* (Calcined Potassium nitrate) – 1 part
    - Processed *Poonir* (Fuller's earth) – 1 part
    - Eggshell lime (from Step 1) – 1 part
- These are triturated with egg white for 4 *saamam*, made into discs, dried, sealed in a crucible with 5 layers of clay, and subjected to calcination with 20 cow-dung cakes of 2 palam each (≈ 80 g each).
- After cooling, a stronger grade of *chunnam* is obtained.

Step 3 – Preparation of Eggshell Extract (*Seiyaneer*):

- To the above *chunnam*, add:
    - *Veeram Kattu*(CalcinedMercuric chloride) – 1 part
    - *Navasaram Kattu* (Calcined ammonium chloride / sal ammoniac) – 1 part
    - Processed *Vediyuppu* (Potassium nitrate) – 1 part
- The mixture is triturated for 2 *saamam*, placed in a *seiyaneer* bottle, sealed at the mouth, and subjected to a special distillation process (*seiyaneer kuzhi* method).
- It is kept for 30–40 days, after which it liquefies into a pungent alkaline extract.

Step 4 – Final Strengthening:

- The liquid extract is transferred to another container, sealed with cloth and resin (such as shellac), and kept in direct sunlight for 40 days.
- The vessel must be shaken vigorously 4–5 times daily.
- After this maturation period, the result is a highly caustic extract, known as *Anda Seiyaneer.*

Applications:

- This extract is considered a universal *Kattu* solvent in Siddha alchemy (*Rasavatham*).
- It is said to be capable of dissolving or stabilizing various metallic and mineral substances, depending on the intended preparation.
- The exact process varies based on the nature of the raw material being processed.

20. Eggshell Extract (Anda Seiyaneer – Alternate Method)

Step 1 – Purification of Eggshells:

- Take hatched chicken eggshells.
- Boil them in salt water, remove the inner membrane, and dry thoroughly in sunlight without moisture.
- This purified eggshell is taken as 3 parts.

Step 2 – Initial Processing with Urine:

- Place the eggshells in an earthen pot and pour children's urine until it covers the material by about 2 inches.
- Keep it for 1 day, then heat on mild fire until all urine evaporates.
- Scrape the residue, grind in a mortar, and triturate with Uttamani root juice (Leucas aspera) for 4 saamam (≈ 12 hours).
- Make into discs (*villai*) and dry thoroughly in sunlight.

Step 3 – First Calcination (*Moosai* method**):**

- Place the dried discs in a crucible (*moosai*).
- Seal tightly with 3 or 5 layers of clay (*seelai man*) and dry.
- Calcine in a furnace (*kollan ulai*) with continuous blowing for 4 hours.
- Care must be taken to rotate the crucible to prevent cracks.
- After cooling, collect the calcined material (*villai*).

Step 4 – Combination with *Vediyuppu*:

- Take equal weight of calcined material and purified *Vediyuppu* Triturate with *Uttamani* juice for 3 hours, make discs, dry, and place in a crucible.
- Cover with stone lid, seal with 5 layers of clay, and dry.

- Calcine using 11 cow-dung cakes of 3 *palam* each (≈ 105 g each).
- After cooling, collect the calcined substance.

Step 5 – Extraction with Sal Ammoniac (*Navacharam*):

- To the calcined substance, add ¼ its weight of purified *Navacharam*(ammonium chloride).
- Grind into a fine paste.
- Place in four wide porcelain plates, kept at the edges.
- Keep these plates on ice overnight so that water seeps out (*niir kasiyum*).
- Collect the exuded liquid, filter through a fine cloth, and store in glass bottles.
- During the day, plates must be kept in a cool place; at night, again placed on ice.
- Repeat until sufficient extract is obtained.
- The collected liquid is the *Anda Seiyaneer.*

Alternative (Simplified Method):

- If the above process is not feasible, the powdered mixture may be placed in a sealed *seiyaneer* bottle and kept in the traditional *seiyaneer* pit method until liquefied.
- Every 10 days, carefully decant the clear liquid, filter, and store separately.
- Repeat until the entire material in the bottle has transformed into liquid extract.

***21. Anda Cey Nīr* (Alternate Preparation Method)**

Step 1: Preparation of the Primary Medium

- One *padi* of fresh lemon juice is taken in an earthenware vessel.
- To this, 10 *palam* (≈350 g) of powdered alum (*Padikāram*) is added.
- Ten large black hen's eggs are immersed in this mixture and exposed to direct sunlight until the eggshells dissolve completely.
- At this stage, only the inner contents of the eggs (albumen and yolk) enclosed within the membrane remain intact. These are carefully collected together with the enclosing membrane.

Step 2: First Trituration (*Kazhivu*)

- The membrane-enclosed egg material is placed in a mortar (*kalvam*).
- To this, the following purified calxes are added:

- 2 *palam* of *Nāvacāram Cunnam* (Ammonium salt calx) or *Nāvacāram Pathangam*
- 2 *palam* of *Turusu Vellai* or *Turusu Cunnam*

- The mixture is ground continuously for 2–3 *sāmam* (≈6–9 hours) and transferred to a porcelain container.

Step 3: Preparation of the Complementary Egg-Lemon Mass

- The residual mixture of lemon juice, alum, and dissolved eggshells (from Step 1) is again exposed to sunlight until it thickens to a semi-solid *kuzhambu patham* (paste-like consistency).
- This mass is ground in a mortar until it forms a homogeneous paste, made into thin discs (*villai*), sun-dried thoroughly, and sealed in a crucible (*agal*).
- The crucible is covered with a lid, sealed with five coats of clay (*sīlai maṇ*), dried, and subjected to incineration in a pit furnace with 30 *virāṭṭi* (cow-dung cakes) using 3 *palam* strength fire.
- After cooling, a calx (*cunnam*) is obtained.

Step 4: Extraction of Essence

- The calx obtained above is ground together with prepared wax (melugu) for 1 sāma (≈3 hours).
- The paste is spread evenly on porcelain plates and placed in dew-rich environments (nighttime exposure to frost/condensation).
- Water (essence) gradually oozes out and collects on the plates.
- This liquid is carefully collected and stored in glass bottles.
- The process is repeated nightly until the entire mass is exhausted, and all liquid essence is obtained.
- The combined filtrates are left in sunlight for 2–3 days to stabilize and then preserved.

Alternative Method (if frost condensation is not feasible):

- The calx is placed in a sealed vessel (*Cey Nīr Kuppi*), its mouth closed tightly, and kept inside a *Cey Nīr Kuzhi* (pit chamber specially designed for essence extraction).
- The standard method is followed until the essence is obtained.

Therapeutic Indications: This preparation is indicated for *Vātam* (Alchemy) and also serves in *Maruttuvam* (Medicine preparation).

***22. Anda Guru* (Egg-Shell Preparations)**

Step 1: Purification of Egg Shells (*Tūymai Aṇṭam*): Half a measure of common salt ("*kariyuppu*") is dissolved in three measures of river water and allowed to stand for two hours. The clear supernatant is then decanted and retained. Into this liquid, two "*vīsai*" (2800 gm) of calcined hen's eggshells are immersed and soaked for 24 hours (one full day and night, equal to 60 *nāzhigai*). The following morning, the shells are boiled in the same liquid, cooled, and carefully peeled to remove the inner membrane. They are then thoroughly washed, sun-dried, and stored in a clean vessel. This purified eggshell material is designated as *Tūymai Aṇṭam* (Purified Egg Shells).

Step 2: Preparation of "*Tani Anda Cunnam*" (Independent Egg-Shell Calx): Purified eggshells (40 *palam* ≈ 1,400 g) are gently crushed and ground in a mortar with the albumen (white) of two hen's eggs, added drop by drop, until a paste is formed. The paste is spread into thin discs, sun-dried, powdered, and packed into a sealed crucible (*mūsai*). The crucible is coated with seven layers of clay (*sīlai maṇ*), dried, and subjected to controlled furnace heat using charcoal, with continuous air-blowing by two bellows for three hours (1 *sāma* = 3 h). The crucible is periodically rotated to ensure uniform heating. After cooling, the resulting calcined product is collected. This material is termed *Tani Aṇṭa Cunnam*

Step 3: Preparation of *Pūnīr Anda Cunnam* (Egg-Shell Calx with "*Pūnīr*"): *Tani Anda Cunnam* (3 parts), processed "*Pūnīr*" (5 parts), and processed "*Paninīr*" (665 g) are mixed in an earthen pot and macerated for three days, stirred 4–5 times daily with a bamboo stick. On the fourth day, the mixture is left undisturbed; on the fifth day, the clear supernatant is carefully decanted. Into this, 210 purified eggshells are immersed and boiled until the mixture reaches the "*kuzhambu patham"* stage (a viscous consistency where a drop solidifies on the fingernail). After cooling, the shells are dried in the sun, powdered, pelletized, and subjected again to sealed-crucible incineration (as before). The resulting calx is called *Pūnīr Anda Cunnam.*

Step 4: Preparation of *Anda Nīr* (Egg Essence): The albumen of ten eggs is mixed with half a *palam* (≈17.5 g) of Calotropis gigantea latex (*Erukku pāl*). To this, one *varākan* (≈4.1 g) of *Pūnīr*

Anda Cunnam is added. The mixture is sealed in a glass container, exposed to direct sunlight for 10 days, and shaken 3–4 times daily. The liquid gradually acquires a rose-like red coloration, forming *Anda Nīr.*

Step 5: Sequential Processing into Specialized Calxes: Using *Anda Nīr* and other purified reagents (*Padikāram* – alum, *Veṇkāram* – sal ammoniac, *Rasakaruppūram* – camphor derivative, and *Nāvacāram* – ammonium salt), successive grinding, pelletizing, and calcination procedures are carried out to yield a series of advanced preparations:

- *Kāra Cunnam*
- *Cey Nīruppu*
- *Veṭiyuppu Cunnam*
- *Parāsīr Cey Nīr*
- *Rasakaruppūram Cunnam*
- *Rasakaruppūram Nīr*
- *Karuppūram Anda Cunnam*
- *Sāra Nīr*
- *Antaraṅga Cey Nīr*
- *Vīra Uppū*
- *Pūra Uppū* (Camphor-Associated Salt)

Final Step: Preparation of *Kaṭuṅkāra Cunnam* (Intensified Alkaline Calx / Anda Guru Cunnam): The above essences (notably Sāra Nīr and Antaraṅga Nīr), Vīra Uppū, Pūruppū, and Pūnīr Anda are carefully recombined and subjected to repeated trituration with Vediyuppu Tiravakam (liquid extract of saltpeter). After drying and final incineration in a sealed crucible (as before), the end-product is obtained. This highly potent calx is called Kaṭuṅkāra Cunnam, also known as Anda Guru Cunnam [9].

Table 1. Mineral content as gram of each mineral and organic matter per 100 g chicken eggshell.

Component	Mean weight in gram	SD weight in gram

Organic matter	**16.1**	**4.6**
Inorganic matter	**83.9**	**5.0**
Calcium	**38.2**	**3.5**
Carbonate	**44.3**	**3.2**
Sodium	**0.51**	**0.09**
Phosphate	**0.44**	**0.06**
Sulfate	**0.32**	**0.07**
Potassium	**0.14**	**0.05**
Strontium	**0.14**	**0.02**
Fluoride	**1.8×10^{-6}**	**1.1×10^{-6}**

Ref: Chicken eggshell as suitable calcium source at home - Scientific Figure on ResearchGate [10].

DISCUSSION:

Eggshells possess a wide range of medicinal and health benefits, largely attributed to their high calcium carbonate content and the bioactive components present in their membrane. They serve as an excellent natural calcium source, providing up to 1,000 mg of calcium from just half an eggshell—an amount equivalent to the daily requirement for adults. This makes eggshell powder useful in managing calcium deficiency, osteoporosis, osteomalacia, and other conditions where calcium supplementation is needed, including pregnancy, lactation, and menopause. The membrane of eggshells contains compounds such as collagen, chondroitin sulfate, glucosamine, and hyaluronic acid, which have been linked to reduced joint pain and stiffness, particularly in knee osteoarthritis. Eggshells also support wound healing by enhancing the properties of dressings used for ulcers, owing to their biodegradability and biocompatibility. Traditionally, eggshell powder mixed with hot milk has been used to soothe gastric ulcers and gastritis, while some folk remedies suggest its role in detoxifying the blood and supporting thyroid function when combined with lemon juice. Additionally, regular intake of properly prepared eggshell powder helps maintain

bone strength and dental health. Beyond internal use, finely ground eggshell powder is incorporated into cosmetic formulations as a gentle exfoliant and skin cleanser. Importantly, proper cleaning and sterilization of eggshells are crucial to ensure their safe use in both dietary and pharmaceutical applications.

Anda Parpam is a classical Siddha formulation prepared from *Anda Odu* (eggshell), which mainly contains calcium carbonate. Variations in preparation methods across Siddha texts reflect the adaptability of the formulation to different disease conditions. The acidic and herbal processing methods likely improve calcium absorption and reduce toxicity. Modern studies on similar *Parpams* indicate that repeated calcination produces nano-sized calcium compounds with high bioavailability and safety. Therapeutically, *Anda Parpam* acts as a *Vaatha-Pitha Samana* and *Rasayana* medicine, useful in respiratory, reproductive, and metabolic disorders. The combination of mineral calcium with herbal components provides both nutritive and anti-inflammatory effects. Proper standardization and analytical evaluation are essential to ensure safety and reproducible efficacy.

CONCLUSION:

Anda odu and related preparations represent the Siddha approach of transforming natural animal-derived substances into potent, bioavailable therapeutic forms. Through systematic purification, calcination, and combination with herbal/mineral media, eggshell-based medicines serve diverse applications in reproductive, respiratory, and systemic health. The traditional methods offer a unique integration of alchemy and medicine, with potential translational understandings for modern pharmacology.

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