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# AN OBSERVATIONAL STUDY OF DEVELOPMENT OF ASSESSMENT AND VALIDATION METHODOLOGY FOR *STANYA PARIKSHAN*

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**ABSTRACT**

**Aims and objective:** To validate *ayurvedic* parameters of *shuddha stanya*.To interpret *shuddha stanya lakshanas* with modern parameters. **Study design:** observational study, 50 patients data was collected and analyzed. **Result:** After the development of milk assessment methodology normal range for shuddha stanya is stabilized.

## INTRODUCTION

Breast milk is like nectar that benefits both mother & child. Hence it is very important thing for every individual in his initial stage of life. Exclusive breastfeeding is the most effective intervention to reduce infant mortality. Breast milk should be timely initiated of breastfeeding within half an hour in normal delivery and within 4 hours of cesarean section, exclusive breastfeeding up to 6 months these are very initial steps to be taken for proper growth and development of child in all the aspects like allergies, sickness, obesity, diabetes and cancer. And breast feed babies have 8 times higher IQ. In *ayurveda classics* also said that the food is the root cause of both health and disease in children so *aacharya* says *aahaara* as *mahaabheshajam*. Due to the modern life style and more junk food it will spoil the quality of milk. These junk food will cause bad affect to mother as well baby because it has more guru in nature and can cause *aama* in body, *ajeerna*etc in mother's body and the same quality transmitted to baby in the form of milk. The *shuddhastanya* is only beneficial for growth and development of baby as the *stanya* is the food for baby. *Shuddhstanya* provide unobstructed, easy and good growth of strength, different body parts, longevity as well as good health and *satwa* of child. It does not cause any trouble to the child. If the breast milk gets vitiated due to aggravation of doshas the stanyadushti will occur and *stanyadushti* leads to *vyadhi* in shishu. *Dushitastanya*may lead to several abnormal conditions like due to *vaatajastanyadushti* child may suffer from *krishata, Swarakshaya, Baddha Vindmutramaruta, Vaataja Shirorog, Peenasa.* Due to pittajastanyadushti *Vikrita Varna, AtiSvinna, Trishna, BhinnaVitt, Pandu, Kamala* may occur. Due to *kaphaja stanya dushti, Chardi, Lalasrava, Atinidra, Klama, Swasa, Kasa*, may occur to the child. These diseases will interrupt into the normal growth and development of child. The proper growth and development is very important for every individual to lead the life without any obstruction. The methodology for *stanya parikasha* is not clearly mentioned in classics hence it is not in practice for day today OPD practice, so by the help of parameters which is told in classics is used with modern equipment and standardization has been done of *shuddha stanya*. The quality which is told in classics is used as a base. By the help of that methodology diagnosis of *dushita stanya* will be easy and depend upon that, the appropriate line of management can be adopted for mother as well as child. The normal range of *shuddhastanya* is been decided on the basis of the qualities which is told in classics and after experimented on 50 samples which is collected from normal individual.

## AIMS AND OBJECTIVES OF STUDY

To validate *ayurvedic* parameters of *shuddha stanya*.

To interpret *shuddha stanya lakshanas* with modern parameters.

## REVIEW OF LITRATURE

**According To *Charakacharya*:-** The milk which is normal in color, smell, taste and touch and when milk is we mix the milk with water filled vessel, the milk get mixes homogeneously with milk that type of milk is known as pure milk. The milk having this quality provide proper nourishment as well as good health to the child.[10]

**According To *Sushruthacharya*:-** The pure milk is cold in nature, clean or free from impurities. The color of milk is whitish yellow or white and resembles like color of conch-shell. The taste of milk is sweet and free from discoloration, when put it in water and mixeses well and evenly, neither produce froth nor streaks, neither floats nor settesduwn.[11] Pure milk provide good health, growth and development of body as well as strength to the child.[12]

**According To *AstangSangragabgah*:-** *Vagbhata acharyasays* which milk mixed well in water it will be pure and not vitiated with doshas.[13]

**According To *Kashyapa*:-** The pure milk provide unobstructed, easy and good growth, provide good strength to all the organ, longevity as well as good health to the child and does not cause any trouble or pain to the child or wet-nurse.[14]

**According To *Harita*:-** Aacharya harita has explained five types of *stanyavikaras* and in that mrdukshira is considered as pure milk. If baby consumes that type of milk then baby get good *satwa*.[15]

## MATERIAL AND METHODS

50 participants fulfilling the inclusion criteria of study were randomly selected. Standardoperative procedures(SOP) and methods were prepared for every experimentused for assessment of stanya. Starting from the collection of stanya till the last experiment all stepswere followed as per SOP. The statistical analysis has been done and the percentage, normal range is decided on the basis of results. Subjects were enrolled from the OPD and IPD, department of Kaumarabhritya and Streeroga & Prasutitantra KLEU's Shri BMK Ayurveda hospital Shahapur Belgaum. Site of Study was KLEU's Shri BMK Ayurveda hospital Shahapur Belgaum. Study design was Observational, study period was 18 months, study participants were lactating women fulfilling inclusion criteria, sample size was 50.

**Inclusion Criteria:** Mothers who werenot suffering fromany acute/chronic health problem like diabetes mellitus, bronchial asthma, thyroid etc. Mothers who were not on any medication that is known to interrupt the study outcome. *Stanya*(mature foremilk -after 2 weeks of delivery) of feeding mothers irrespective of mode of delivery.

**Exclusion criteria:** Mothers who were on any form of medications.

Colostrum and transient milk. Mothers with any acute or chronic illness.

The qualities of *prakrutastanya* (normal) and *vaikrutastanya* (abnormal milk) is been described in *Ayurveda*, however methodology to a certain normal and abnormality of breast milk obscure, hence the present study is planned to develop the normal range of selected parameters by assessing the clinically normal breast milk sample.

## ASSESSMENT CRITERIA

| No. | SHUDDHASTANYA GUNAS | PARAMETERS |
|---|---|---|
| 1 | Shankhavabhasam | Colour |
| 2 | Sheetala | Temperature |
| 3 | Kshipramekibhavati/Avasaadita | Dispersion in water |
| 4 | Aphenila | Bubbling technique |
| 5 | Madhura | Sugar estimation |
| 6 | Atantumat | Viscosity |
| | **ADDITIONAL PARAMETERS** | |
| 7 | Microscopic observation | |
| 8 | pH value | |

**SOP FOR COLOUR CHART:-** Take the slide, clean the surface with methyl alcohol. Place the slide in even place. With the help of dropper, put 1 drop of milk on slide. Compare the colour of milk with the help of color chart. Take the photo of each test.

**SOP FOR TEMPERATURE MEASUREMENT**

Core temperature of mother over fore head & chest was measured before collecting milk. Milk is collected from the mother by gently squeezing the breast and nipples. Temperature of milk was measured immediately after collection of sample.

**SOP FOR WATER TEST:-** Container taken 50 ml beaker.

Volume of *stanya* required was 1 drop. Volume of water required was 10 ml. Size of drop was 1 drop from Pasteur pipette. Height of the *stanya* to be dropped -- from the edge of beaker. Duration between collection

and performance of test: 5 to 10 min or as quickly as possible. Type of water used was distilled water. In the reading of the test time taken to mix with water, streaks, color, sediment, floating of milk into the water is recorded.

**SOP FOR BUBBLE TEST:-** Take the test tube clean and dry it. Take 1ml of mother's milk. Introduce the needle and produce froth for 30 second and note the time for the reduction of froth. Measure the bubble size, and duration for disappearance of the bubbles.

**SOP FOR LACTOSE IN MILK:-** Collect 5cc of diluted milk 2.8 to 3.4 cc of milk big test tube is taken and is added 5 cc of 6% copper sulphate solution is added to it. Add 4-5 gm of dry salt mixture to it. Shake the tube and gently boil it for 4 min. At the end of 4 min add 0.02 cc to 0.10 cc depending upon the blue colour remaining and boil it again. Total boiling period should not exceed more than 5-7 min.

**SOP FOR GLASS ROD TEST:-** Take slide clean it with spirit.
Place the slide in even place. Take the milk in dropper and put 1 drop milk into slide. Take the rod and see the viscosity of milk. Take the photo of each test.

**SOP FOR pH CALIBRATION:-** Switch on the button, wait for approximately 2 minutes. Remove the stored water from the beaker, wipe the electrode with the blotting paper and dry it. Measure pH 4 by taking a known buffer solution of pH 4. Adjust the meter to read 4 with the calibrated 1 knob on the left. Remove electrode from pH 4 buffer and wipe the electrode with blotting paper. Measure pH 7 by taking a known buffer solution of pH 7. Adjust the meter to read 7 with the calibrated 2 knob on right. Remove electrode from pH 7 buffer and wipe the electrode with blotting paper. Repeat the procedure until the meter reads pH 4 and pH 7 without adjusting the knob. Milk sample collected were then measured for pH and readings were noted.3 repeated readings were taken and average of the there was considered.

**STANDARD OPERATING PROCEDURES FOR MICROSCOPIC TEST**
**SOP FOR MICROSCOPY:-** Remove the cover. Switch on the main power button and light button. Keep the microscopic slide on stage and hold it using clips provided at the sides. The specimen containing slide can be observed using different magnifications 40x by using nose piece. The images can be viewed using fine adjustment knob. After using microscope, clean stage area with 70% alcohol, along with magnifying lenses. Switch off power button and main switch. Cover the microscope.

**OBSERVATION & RESULTS**
Study conducted on fifty participants. By following the inclusion and exclusion criteria patients were randomly selected. These participants were taken from the KB and SRPT OPD KLE Shri BMK Ayurved Hospital then the sample is collected and tested in the shrishti fertility lab and central research facility afflicted by Ayush. The samples are not divided into any groups. The detail history is been taken of every patient. Thus the complete observational study with 50 samples of 50 participants.The observations made were graded and tabulated as follows.

**DISCUSSION**
This research study was planned to develop valid parameters for assessment of *shuddha stanya*. There were 50 participants in the study whose breast milk was subjected to different experiments like colour test, temperature test, dispersion in water test, bubbling technique, sugar estimation and viscosity test to develop normal valid parameters for assessment of shuddha stanya. study was conducted as per the method and standard operative procedures. The statistical analysis of quantitative data is done using mean, median, mode and range where as qualitative data is analysed using their minimum and maximum values. In this study discussion is made on on methodology, observations and results.

**DISCUSSION ON METHEDOLOGY**
The methodology of the *stranya pariksha* is been decided on the basis of basic properties of *shuddha stanya* which is mentioned in the classics.

**Colour Chart:-** The color of milk is *shankhavbhasitam* or *pandura varna* so the color of milk is standardized by taking the zero grading of conch shell color. As in the *stanya dushti* explained in classics if *vaataja dushti* occur the color of milk turn into the grayish in color and if *pittaja stanya dushti* will occur then more yellowish tinge increase depending upon the severity of dushti of stanya. and in case of kaphaja stanya dushti the more whitish tinge will be present. The grading has been decided by thinking of all the doshas. The normal range of color is decided after experimented of 50 normal individual samples. The normal range is M-1, M-2(milky white), Y-1, Y-2 (yellowish), G-1, G-2 (grayish), Conch shell-0. The color chart is prepared for assessment of milk from 15$^{th}$ day of delivery till 3$^{rd}$ month.

**Temperature:**- The temperature of milk as well as core body temperature of mother is recorded because in the *shuddha stanya guna sheetala* is been explained. Hence by observing in all samples, seen that the milk temperature was less then mother core body temperature. So in case of *pittaja prakopa* in mothers body then may be temperature of milk is more than body temperature. The temperature is recorded soon after the collection of milk as well as the core body temperature.

**Water Dispersion Test:**- The mixing of milk in the distilled water is recorded because the word came as *kshipram eki bhavati* that word meaning is nothing but very fast shuddha stanya mixes with water and in case of

*kaphaja dushti* the milk settles down in the bottom of vessels because of guru *guna* of *kapaha*. In case of *vaataja dushti* of milk the milk will float upon the water due to the *laghu guna* of *vata*. In case of *pittaja stanya dushti*, while mixing milk will form streaks. The mixing of milk in 50 samples within onSe minute was tested so that it can be interpret that the *shudda stanya* will neither settle down nor float or form strikes while mixing in water and it will mix within one minute. The capacity of container chosen for experiment is of fifty ml and the droppere used is pasteur pipette because the adequate amount of milk should be dropped in water is needed. The height of the dropper was edge of the beaker because if height of dropper is more than the chances of error may be present.

**Milk Sugar(Lactose) Test:-** The *madhurtaa* can be interpreted by the presence of lactose quantity in the milk. This is done by the help of titration method and the lactose percent was seven gm in hundred ml of milk. If the quantity of lactose will reduce then the chances of *vataja dushti* may be there and due to reduced *madhurta* child may refuse to feed.

**Bubble Test:-** Bubble formation is more in case of *vataja dushti*, and may remain after 5 sec. The normal limit for disappearance of bubble for *shuddha stanya* is within 5sec.

**Viscosity Test:**- Then in case of *kapha dushti* the *picchilta* will increase in milk, hence the thread which is formed through glass rod test is more and elongated or we can say that *tantumata* is more.

**pH Of Milk:-** Range of pH of *stanya* is between 6.2 to 7.3. If the alkalinity of *stanya* increases, more than 7.3 that can be called as *vaataja dushti*. Because the rasa of *vikruta vaata* is *kashaya*. If pH of stanya is below 6 then it can be considered as *Pittaja stanya Dushti*. *Rasa* of *vikruta pitta* is *amla*. As the acidity increases amla *guna* also increases.

## DISCUSSION ON OBSERVATIONS

**Age:-** In this study among 50 participants 25 participants (50%) were belonging to age group between 18-25. Age for marriage in the study area for girls is from 16 yrs to 28. The age for conception is also high between the ages of 18 till 35 so that age group is more seen in the study.

**Prakruti:** In the participants the highest occurrence of the *prakriti* is *kaphapittaja prakriti.* The *prakriti* of the mother does not interfere in the quality or the quantity if the milk. Because whatever the *prakriti* of mother was the milk didn't got settled down in the bottom of container in the water test, the *vaataja pradhaan prakriti* participant's milk also did not float upon the water.

**Normal Vaginal Delivery:** The NVD mode of delivery was 70 percent but when we compared the milk of both NVD as well as LSCS the qualities of milk did not differ.

**Diet:** 82% of lactating mothers were following puerperal diet during the study and 18% mothers on normal diet. 50% of women were from vegetarian and 50% from non vegetarian. No change is observed in the breast milk of all categories. it was found agni of woman in all categories was very good may be that is having effect over proper digestion of food and normal stanya. The diet of mother plays major role in forming qualities of milk. After digestion of food the *rasa* is formed. Sweet essence part of this rasa circulating through entire body by the action of *vyana vayu* reaches breast and is termed as *stanya* (breast milk) or in other words the *stanya* is formed from rasa. It is also *upadhadu* of rasa. The type of food is also important, because if the mother consumes more non-veg food article then it is guru in nature and may cause the *ajirna* and it will leads to the formation of *aama*. The *aama* is only the main root cause for the occurance of diseases in the mother's body and through mother's milk cause diseases in the baby. If agni is good that will help in proper digestion of food resulting in good ahara rasa.

**Curd Intake:** Most of the participants around 52% were occasionally eating curd, but not at night time, so that will not become *abishayandi* and that will not interrupt the *agni* of mother so that the proper *aahara rasa* formation will occur. Also agni was good in 100% of woman.

## DISCUSSION ON RESULTS

**Colour Chart**:- Maximum milk sample in the study came between Y-2, G-2, M-2 range. Hence it is standard range, because all samples are taken from normal healthy lactating mother.

**Temperature**:- Milk temperature was 96.1˚F -- 98.7˚F. The range of milk temperature was 2.6˚F If the milk is more than 98.7 ˚ F than it is conceder as *ushna* which is opposite to the *shuddha stanya* quality. It may be due to pittaja prakopa in the mother's body. And due to that it may harm the baby.

**Water Dispersion Test:-** Milk dispersed in the water between 37 sec to 53 sec so the normal taken time for dispersion of milk is within 1 minute. These results got from samples which are tested in lab. Milk was disperse in the water within one minute in all the samples which is taken from healthy participants, if the milk settle down in the bottom of container than *kaphaja stanya dushti* is present because the *guna* of *kapha* is guru. The guru *guna* makes milk settle down in the bottom. In the samples they mixed in the water equally.

**Sugar Estimation**:- Normal sugar (lactose) value in milk is between 7.11 to 7.12 g percent. If the level of lactose is less than 7 g percent then *vaataja dushti can be considered.*

**Bubble Test:-** Disappearance of bubble in milk is within 5 seconds and the size of the bubble was maximum 5

mm. If disappearance as well as size of bubble is more than the value then it is *vaataja stanya dushti*. In the results 42 percent of bubbles which is created by aquarium bubbler was disappeared in 5 seconds.

**Viscosity:-** The viscosity is assessed with the help of glass and rod. In that 92 percent of sample were did not thread formed in normal milk is less than 2 mm. If the thread formed is more than 2 mm than it can be considered as kaphaja sanya dushti.

## CONCLUSION

In the present study, the *Ayurvedic* parameter of *shuddha stanya* like *shankavabhasata*, *Shitala*, *Kshipram Ekibhavati*, *Aphenilam*, *Madhurata* has been validated by experimenting on 50 samples of *Shuddha Stanya*. The interpretation of *Shuddha Stanya Lakshana* with modern parameter has been done and the normal range for all the parameter is established in breast milk between 15days to three months following delivery.

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