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COMPARATIVE ANALYTICAL STUDY OF *VIJAYBHAIRAV TAILA* PREPARED BY TWO DIFFERENT METHODS

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ABSTRACT

Ayurveda is the science having unbroken continuity. It represents the totality of life and gives the total knowledge required to maintain the holistic balance of functioning of mind and body. *Rasa-shastra* is ancient alchemical science originated with twin aim of attaining *dehasiddhi* and *lohasiddhi*. It deals with metal and minerals to produce drug with higher efficacy in lower doses. Thus it fulfills the aims and objectives for preparation of "*Shreshtabhaishajya*" that's best medicine."Comparative analytical study of *Vijaybhairav Taila* prepared by two different methods", was aimed to assess the S.O.P. for the processing of these drugs and to test. The present study was carried out for the evaluation of the reference regarding the preparation of *Vijaybhairav Taila*. For this purpose study was carried out and results were analyzed on quality of final product as well as on pharmaceutical grounds. *Vijaybhairav Taila* was selected for the study, because in *Kampavata, Ekangavata, Shirakampa, Vataroga* has good effect and the lacking of research over the pharmaceutics of *Vijaybhairav Taila.* There are many *taila kalpana* with herbal drugs and special method of *snehapak,* but in this preparation method of *druti kalpana* contains only minerals. So it is task that the part of mineral like sulphur, arsenic, mercury will enter in final product or not and in how much percentage with the help of physicochemical analysis. The reference of preparation of *Vijaybhairav Tail* was taken from R.R.S. 21/148 and 21/151.Analytical test of the final product (*Vijaybhairav taila* prepared by two different methods) carried out as per reference of Ayurvedic pharmacopoeia of India and Indian pharmacopoeia. Results of raw material study justify authenticity of the raw material, result of in process study of the *taila* compared with standard and fulfill assessment criteria. Results of the final product discussed and conclusion are drawn, explained full paper. Further studies are required to develop standard for the formulation.

Keywords: *Vijaybhairav Taila* Comparative study, *Til taila and sarshap taila.*

INTRODUCTION

"*Rasa-Shastra*" is a branch of *Ayurveda* which deals with the Ayurvedic pharmaceutics i.e. manufacturing of *Rasaushadi* by using various minerals, metals, herbs, animal products etc. wherein there is an intense use of especially minerals and metals. *TailaKalpana* is a pharmaceutical process which comes under *Sneha Kalpana* in *Bhaishajya kalpana* but *Vijaybhairav Taila* comes under *Rasaushadhi's* and *Druti kalpana* which is described in

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"*RasaratnaSamuchya*" *Rasaushadhis* are mainly used for internal purpose but it is very rare some *Rasaushadhis* are used for both purpose like internal and external application. A pharmaceutical process to prepare oleaginous medicaments from the substances like *Kalka, Kwatha* and Drava dravyas in specific proportions by subjecting to a unique heating pattern and duration to fulfill certain pharmaceutical parameters, according to the need of therapeutics. This process ensures transformation of the active therapeutic properties of the ingredients to the solvents and hence to get fat solule, water soluble or even the chemical constituents which are soluble in media like *Kanji*, Butter milk etc. In other words, fixed oil Tila serves mostly as solvent for fat soluble substances. When minerals treated with *Taila* at particular temperature it changes the properties of *Snehadravya*. Which have some therapeutic effects. *Vatas* the master controller of the body physiology when gets altered. It is the *Taila kalpana* which comes to help, in the subcontinent *Vatavyadhis* are the most occurring diseases because of geographical condition. These are several formulations available in the text of *Ayurveda* for the treatment of *vatavyadhi*. There are many *taila kalpana* with herbal drugs and special method of *snehapak*, but in this preparation method of *druti kalpana* contains only minerals. So it is task that the part of mineral like sulphur, arsenic, mercury will enter in final product or not and in how much percentage with the help of physico-chemical analysis. *Vijaybhairava Taila* is one of mostly used in *Vatavikarit* is specially indicated *kampavata* and it can be used externally and internally. The present study deals with preparation comparative physico-chemical studies.

Material and methods

Parada Shodhan

Equal amount of *Sudha* (slaked lime) is mixed with *Parada* and the mixture is triturated for 3 days. It is then strained through twofold cloth and again taken into the *Khalva*. This time mixed with *Lasuna* paste (de-skinned garlic cloves) ½ part and ¼ the part *Saindhava* (Rock Salt). It is triturated for such a time till the mixture become black in color the mixture is then washed with hot water to get *Parada* back.

Gandhaka Shodhan

First *Goghrut* and *Gandhaka* are taken in same quantity in an iron vessel and it should be heated till it melts. After that melted *Gandhaka* should be poured in pot which contains milk, then *Gandhaka* should be removed from milk and it should be washed in hot water so that the ghee should be removed. Again this *Gandhaka* should be melted a pouredin fresh milk. This procedure should be repeated for 3 times to get *Shuddha Gandhaka*.

Hartal Shodhan

Haratala is boiled in each of the liquids such as juice of *Kusmanda,* lime water and *Tila Taila* (in dolayantra for 3 hours in each) the total process should be completed within three days which makes it devoid of dosas. *Hartala* is powdered coarsely and mixed with $1/10^{th}$ of *Tankana* powder. The mixture is then washed with juice of *Jambira* and *Kanji.* Then it is tied in to four fold cloth to prepare *pottali* and boiled in the mixture of lime water and *Kanji* in *dolayantra* for a day. It can also be purified by boiling in juice of *Kusmanda* or *Salmali* for a whole day, with the help of *Dolayantra*. The pottali is prepared as said above. This will purify the *Hartala.*

Manshila Shodhan

Manshila is purified by giving *Bhavanas* of either juice of *Agasthya* leaves or *Ardraka*. *Manshila* is first boiled in the juice of *jayanthi, Bhringaraja* and red *Agasthya* leaves (either in individual juice separately or in the mixture of them) for *one prahara* (3 hours) and then in the urine of goat for one *prahara*

(3 hours) in *Dolayantra*. It is then washed well with *Kanji*. The *manshila*, thus purified is capable of curing all the diseases.

Preparation of *kajjali*

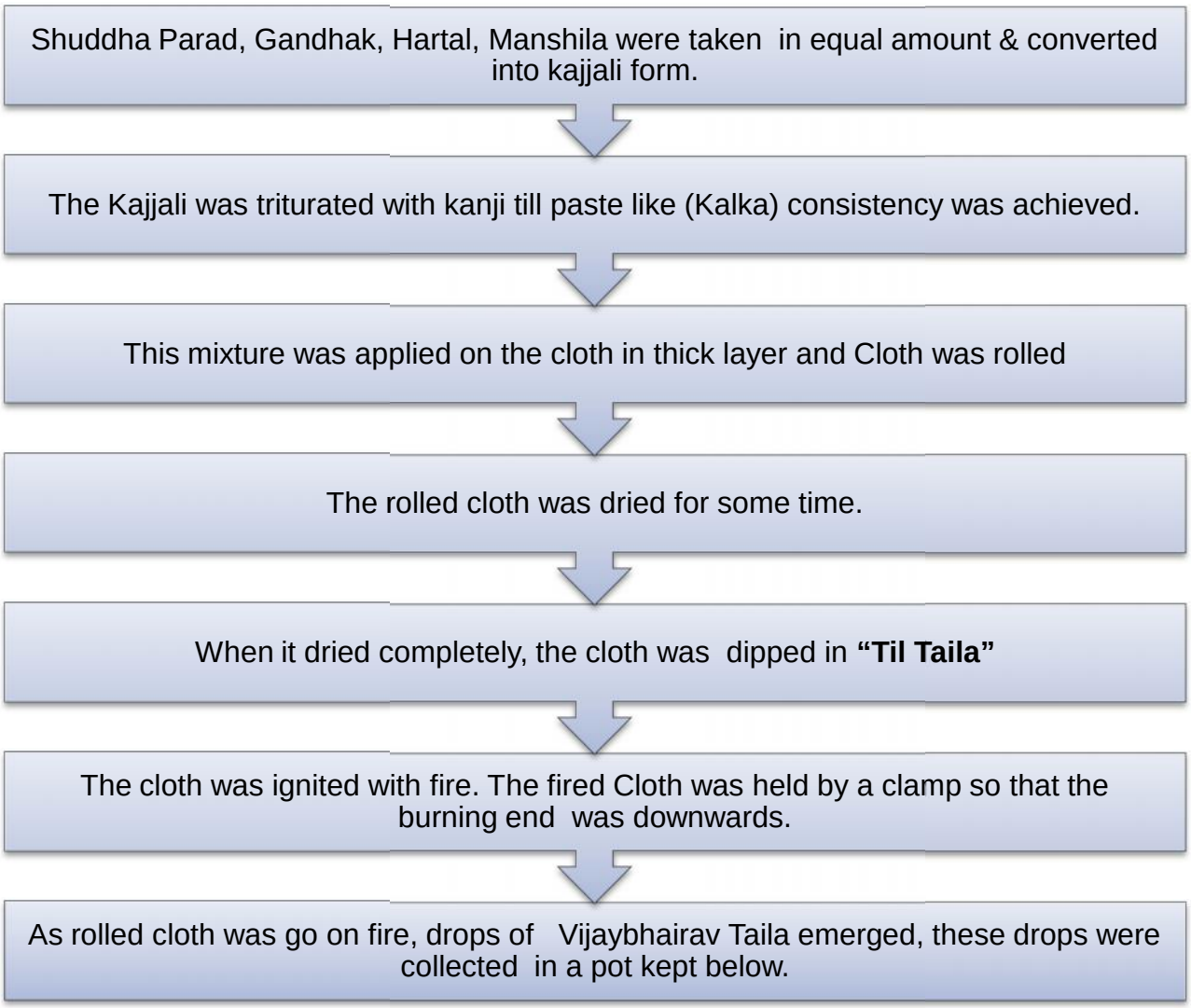
Ingredients:-

Samaguna *kajjali* prepared by triturating equal quantity of parade and *gandhaka* in *khalvayantra* till fulfill *siddha lakshana*.

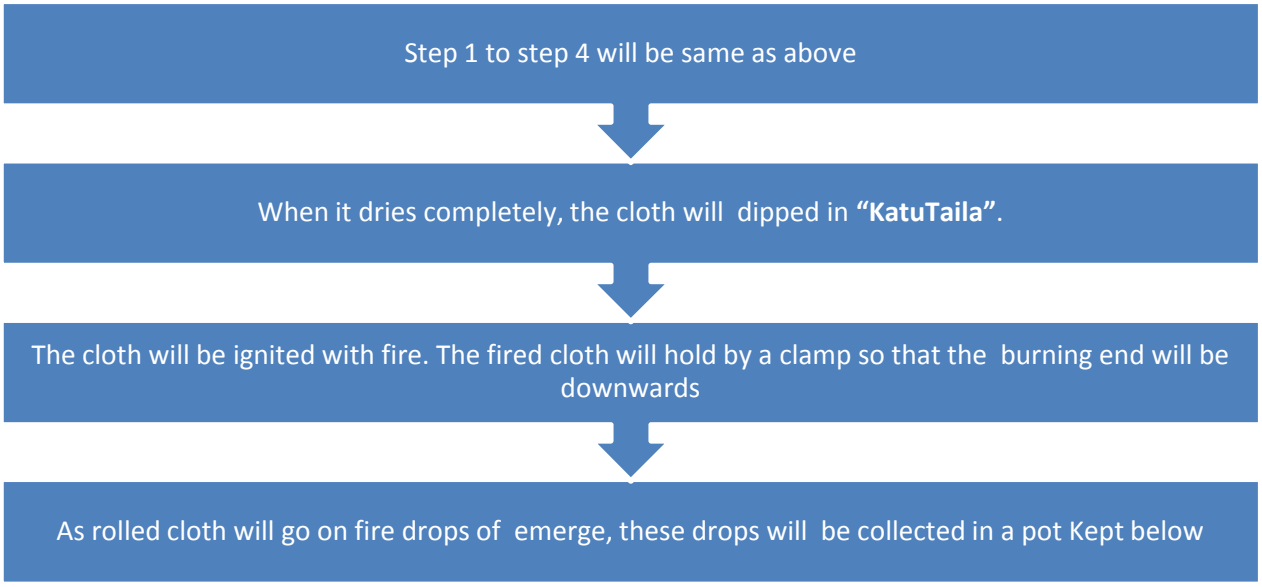
Preperation of *Vijaybhairav Tail* Using Til Tail (1st Method):-

Parada	250 gm
Gandhaka	250 gm
Hartal	250 gm
Manashil	250 gm
Kanji	q. s.
Til tail	1 litre

Procedure show as below:-



Preparation Of *Vijaybhairav Tail* Using *Katu Tail* (2nd Method):-



Analytical Study (According To Modern Science)

Acid Value: Acid value is the number which expresses in milligrams the amount of Potassium Hydroxide necessary to neutralize the free acids present in 1 gm of the sample. 25 ml of Ethanol was mixed with 25 ml of Ether and 50 ml of this mixture was added to accurately weighed 10 gm of drug. 0.1 M of Potassium Hydroxide was mixed with it and the mixture was allowed to dissolve fully. If the sample doesn't dissolve in the cold solvent then the flask should be connected with the reflux condenser and warmed slowly with frequent shaking until the sample dissolves. 1 ml of Phenolphthalein solution was added to it and the titration was done with 0.1M Potassium Hydroxide solution until the solution remained faintly pink after shaking for 30 seconds. Then the acid value was calculated from the following expression Acid value = 5.61 n/w Where n is the number of ml of 0.1M of Potassium Hydroxide required and w is the weight of the drug in gm.

Iodine value: The Iodine value is the number which expresses in grams the quantity of Halogen, calculated as Iodine, which is absorbed by 100 gm of the substance under the described conditions. Oil and ghee contains saturated and unsaturated glycerides and Iodine Value is a measure of the degree of instauration of oil or ghee. Pyridine Bromide solution is required for the determination of the Iodine value which can be prepared in the following way – 8 gm of pyridine is mixed with 5.4 ml of concentrated Sulphuric acid in 20 ml of Glacial Acetic Acid keeping the solution cool. Then 2.5 ml of Bromine is dissolved in this solution and the whole mixture is diluted with Glacial Acetic Acid to 1000 ml. This solution is generally prepared immediately before use.

Refractive Index: Refractive index (R.I) of a substance with reference to air is the ratio of the sine of angle of incidence to the sine of angle of refraction of a beam of light passing form air into the substance. It can also be defined as the ratio of the velocity of light in air to its velocity in the substance. It is valuable in the identification of the substances and the detection of impurities. Refractive Index varies significantly with temperature. So temperature should always be noted during measurement of Refractive Index. The Abbes Refract meter is generally used for the measurement of Re-

fractive Index is most the cases, but other refractometers of equal or greater accuracy can also be used. To achieve the theoretical accuracy, it is necessary to check frequently the temperature control and cleanliness of instrument by determining the Refractive Index of distilled water which is 1.3330 at 20^0C and 1.3325 at 25^0C.

Saponification Value: Approximately 2 gm of drug was accurately weighted and taken in a 200 ml flask of borosilicate glass fitted with a reflux condenser. 25 ml of 0.5M Ethanolic Potassium Hydroxide was added into it. The Ethanolic KOH can be prepared in the following way –35 –40 Gms of KOH is dissolved in 20 ml of water and diluted to 1 lit with Ethanol (95%). The solution is allowed to stand overnight and the next day decant off the pure liquid which is called as Ethanolic KOH. Then the mixture of the sample and Ethanolic KOH was boiled on a water bath for 1 hour and was cooled. 1 ml of phenolphthalein solution was added into it and titration was done immediately with 0.5M Hydrochloric Acid. The number of ml of Hydrochloric Acid required for the titration is called as 'a'. The experiment was repeated omitting the sample and the number of ml of 0.5M Hydrochloric Acid required for the titration is called as 'b'.

Viscosity: The liquid under test is filled in a U tube viscometer in accordance with the expected viscosity of the liquid so that the fluid level stands within 0.2 mm of the filling mark of the viscometer when the capillary is vertical and specified temperature is attained by the test liquid. The liquid is sucked or blown to the specified weight of the viscometer and the time taken for the meniscus to pass the two specified marks is measured. The kinematic viscosity in centistokes is calculated from the following equation:

Kinetic viscosity =kt

Where k = the constant of the viscometer tube determined by observation on liquids of known kinematic viscosity. T = time in second for meniscus to pass through the two specified marks.

Peroxide value: Take 5 gm of the substance being examined, accurately weighted, into a 250 ml glass Soppered conical flask, add 30 ml of a mixture of 3 volumes of glacial acetic acid and 2 volumes of chloroform swirl until dissolved and add 0.5 ml volumes of saturated potassium iodide solution. Allow to stand for exactly 1 minute, with occasional shaking, add 30 ml of water and s and vigorous shaking, with 0.01 M sodium thiosulphate until the yellow color almost disappears. Add 0.5 ml of starch solution and continue the titration, shaking vigorously until the blue color just disappears (a ml). Repeat the operation omittin the substance being examined (b ml) the volume of 0.01 M sodium sulphate in the blank determination must not exceed 0.1 ml calculate the peroxide value from the expression.

Peroxide value = 10 (a-b)/W

Where W = Weight, in g, of the substance.

Observations and Results-

Observations-Quantity of *Vijaybhairav Taila* obtain by two methods

	Til Tail	*Katu Taila*
Quantity	485 ml	438 ml

The physical properties of *Vijaybhairav Taila* prepared by two methods were assess with the help of organolptic characters.

Sr.No	Vijaybhairav Taila	Colour	Odour	Touch	Taste	Appearance
1	Method I	Dark Brownish	pleasant	Slippery	Bitter	Semisolid
2	Method II	Blackish	Katu smell	Slippery	Bitter	Semisolid

RESULT -

Comparative Study of *Vijaybhairav Taila* by Using *Til Taila* values

Parameters	*Vijaybhairav Taila* by using *Til Taila*	
	Raw Til Taila Value	Final Product of VBT
Acid Value	2.97	30.51
Iodine value	112.31	148.89
Rancidity	Absent	Absent
Refractive Index	1.4651	1.5722
Saponification value	171	18.68
Viscocity	34.80	116.70
Peroxide value	4.40	0

Sulphur contain in *Til Taila* : 0.315 %

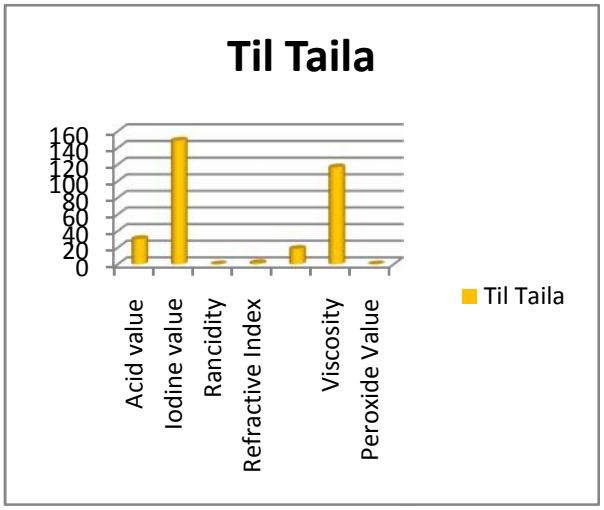
***Comparative Study of *Vijaybhairav Taila* by Using *Katu Taila* values**

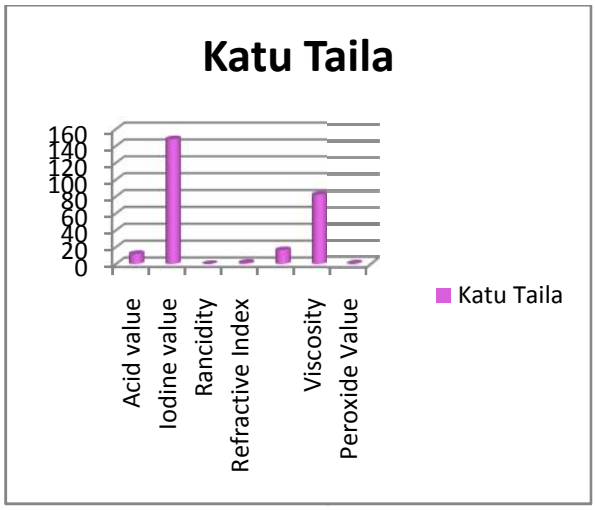
Parameters	*Vijaybhairav Taila* by using *KatuTaila*	
	Raw *Katu Taila* Value	Final Product of VBT
Acid Value	0.50	11.89
Iodine value	106.41	147.96
Rancidity	Absent	Absent
Refractive Index	1.4653	1.4852
Saponification value	191	16.42
Viscocity	63.80	82.291
Peroxide value	7.80	0

Sulpur contain in *Katu Taila* 0.489 %

***Vijaybhairav Taila* Final Analytical Values**

Parameters	Final Values of Taila	
	Til Taila	*KatuTaila*
Acid value	30.51	11.89
Iodine value	148.89	147.96
Rancidity	Absent	Absent
Refractive Index	1.5722	1.4852
Saponification Values	18.68	16.42
Viscosity	116.70	82.29
Peroxide Value	Absent	Absent





DISCUSSION

Vijaybhairav tail is used to help in the management of *Kampavata, Shirkampa, Vataroga, Janukampa* etc. These diseases can be correlated with the diseases explained in modern sciencs like Parkinsonism, Arthritis, Hemiplegia, Paraplegia etc. The treatments available for these diseases in modern are for long time and May used to cause the recurrences. Hence, these lines of treatments are cost effective. So, it was an attempt to prepare *Vijaybhairav Taila* as per the references which may be economic to the patients and may give the permanent relief from the symptoms.

In *Vijaybhairav Taila*, there are the four contents namely, *Parada, Gandhaka, Hartal, Manshil*. Amongst them Parada is a very poisonous drug. As per the ayurveda, *Parada* is having some *doshas* which may dreadful to the human body. So, *Shodhna* of *Parada* was done to remove the *doshas* and to make it acceptable to the body. *Shodhana* of *Gandhak* was done to reduce the toxicity of the drug and to make it Bioassimible to the body. *Hartal* is the next content of *Vijaybhairav Tail*. *Hartral* is having maximum percentage of arsenic, which is itself a poisonus compound. It is having severe complications over the skin and various systems of the body. Hence, to avoid such complications, the *shodhana* of *Hartal* was done. *Manshil* is also an important content in the *Vijaybhairav Taila*. It is also having a significant percentage of arsenic, which is too toxic. Its un-purified form may cause the renal calculi and even the dreadful diseases.

CONCLUSION

- *Vijaybhairav Tail* was prepared by two different procedures. The one method was by *Til Taila* and another one by using *KatuTaila.*
- In the process of *shodhana*, triturating, heating, boiling of *Parada, Gandhaka, Manahshila, Hartala*, these inorganic crude drugs were converted into bioavailable form, which used to assimilate easily into the human body system without causing any toxic symptoms.
- After burning the varti at 100^0 c to 130^0 c, the final product of Til tail was quiet large in quatity as compared to *katu tail.*
- *Katu Tail varti* taken more time to burn as compared to *Til Tail varti*.
- *Vijaybhairav Tail* prepared by Til Tail is more economical.
- On the basis of physico-chemical analysis, Average acid value of *Vijaybhairav Tail* in *Til Tail* is 30.51, Iodine value is 148.89,

Saponification value is 18.68, andViscocity value is 116.70.

- On the basis of physico – chemical analysis, Average acid value of Vijaybhairav Tail in Katu Tail is 11.89, Iodine value is 147.96, Saponification value is 16.42, and Viscocity is 82.29.
- Sulphur contained in *Katu Tail* was more than *Til Tail* because of direct burn of tail, the unsaturated fatty acid percentage is increased that which lead to decrease in saponification value.
- As per above shown details conclusion that xrf of final product suggestive of there were traces of mercury in *katu tail* was higher than the *til tail* while traces of arsenic in til tail was higher than the *katu tail.*
- On the basis of present study, minerals treated with *Til Tail and Katu Tail* at perticular temperature, it might be change the properties of *snehadravya* in some therapeutic effects like *Kampavata, Ekangavata, Shirakampa, etc.*
- In the procedure of *Vijaybhairav Tail* because of direct burning (*Tail/DrutiNirman*), there is rised unsaturated fatty acid value, Iodine value, and viscocity value. The final product might be stimulating to nervine end in external application. And hence, useful in *Vatroga and Kampvat*.
- After accomplishment of this study, we concluded that *Til Tail* might be used externally and *Katu Taila* might be used internally on the basis of analytical data.
- Final yield of *Vijaybhairav Taila in Til-Taila* was 485ml and in *KatuTaila* was 438ml. This difference is might be because of different burning response time of *Til-Taila and KatuTaila.*
- Futher clinical studies should be encouraged to verify therapeutics of *Vijaybhairav Taila* prepared by above methods.

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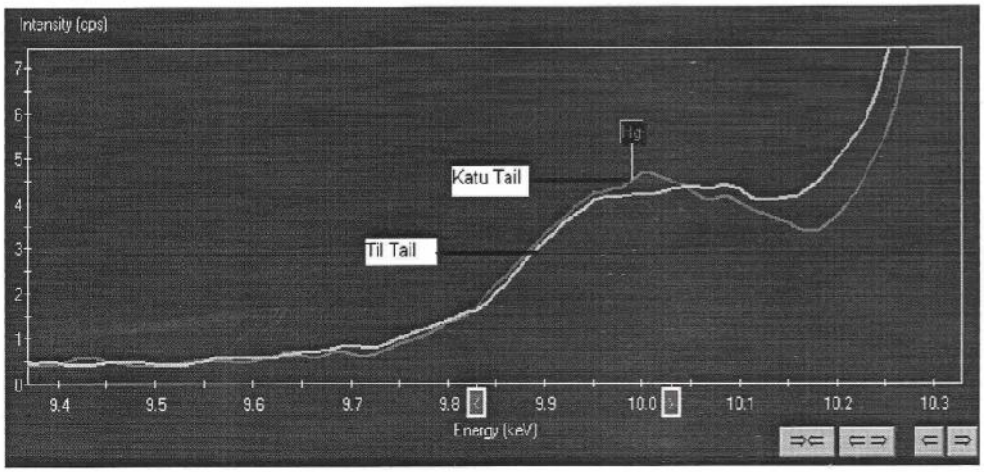
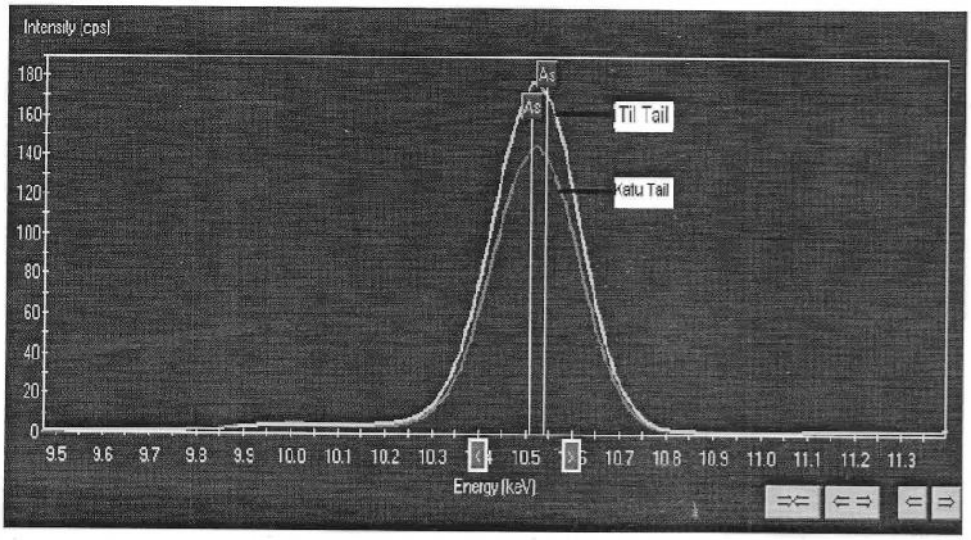


Note- From XRF spectra Mercury content in Katu Tail is higher than Til tail.



Note- From XRF spectra Arsenic content in Til Tail is higher than katu tail.

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