Int J Ayu Pharm Chem
ISSN 2350-0204
www.ijapc.com

Kabasura Kudineer for Global Pandemic - Insight on 'Quality Trap' and its Effect on Efficacy

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ABSTRACT

Kabsura kudineer is a *Sastric Siddha* Medicine indicated for the fever and respiratory illnesses. It contains 15 herbs in equal proportions and are from varied plant parts like root, rhizomes, leafs, buds etc. Because of this, density variation will occur when they are packed together. Even if they were pulverized to equal size these variations likely to occur and results in uneven dosage. This also results in poor quality of product which in turn effect the efficacy. The present paper gives the insight of the variations and how to overcome the dosage and quality limitations with 'extract embedment technique'. Details are presented in the paper.

Key Words: *Kabasura kudineer, Fever, Respiratory issues, Quality, Kabum*

INTRODUCTION

The lightening attack of novel coronavirus that emerged from the wet market in Wuhan, China has made the entire medical fraternity, epidemiologists, scientists, policy makers and administrators go hunky punky for a solution to arrest the pandemic. The medical fraternity at large is willing to explore every option to contain the virus and save humanity.

Siddha system was one of the ancient health wisdom prevalent in Tamilnadu. Several herbal, mineral, metals etc are used in preparing siddha concoctions for treating various diseases.

Based on the description of the indication for which the Kabasura kudineer was administered, Kabasura kudineer came to the center stage to deal corona pandemic. The herbs used in Kabasura kudineer are well studied for various therapeutic benefits[1].

The term 'kabasura' refers to a type of fever due to the imbalance or derailment of one of the Tridoshas called 'kapha'. The three humors such as vata, pitta and kapha are considered to be the key balancing forces of health and wellness in human system and any change or modification or aberration to the Tridosha equilibrium is postulated to result in various health complications. The kapha humor predominantly regulates the respiratory problems involving the lungs.

The novel coronavirus primarily targets the respiratory system, inflate the lungs and causes hypoxia and other immune complications especially the cytokine storm and finally kills the patient.

Different herbal ingredients in Kabasura kudineer are assumed to have an array of medical values such as immune up regulation, increase the oxygen level in the blood, prevent lung inflammation etc.

The government of Tamilnadu after realizing the huge medical potential of Kabasura kudineer started to give Kabasura kudineer to all citizens in the state to prevent the disease, to promote immunity and to treat the disease[2]. Although a clear scientific reason for the low mortality rate in Tamilnadu COVID-19 patients is not known, the role of Kabasura kudineer for the above low mortality rate cannot be ruled out.

The question of whether we are finding even and consistent therapeutic benefit from Kabasura kudineer is difficult to answer. We strongly believe that Kabasura kudineer has non-negotiable therapeutic efficacy.

Today the market is flooded with Kabasura kudineer preparations manufactured and marketed by several private players. Many preparations of Kabasura kudineer are made by partly and or grotesquely powdered herbal base packed in a container. Due to size variability, weight variability, powder characteristics, the different herbs bound to separate and position according to the density and gravity in the container in which it is stored[3]. This variability we have noticed bound to affect the therapeutic efficacy of the concoction. Different herbs are going to present in the finished product in different proportions from top to bottom and which in turn would affect the quality and therapeutic of the kudineer. For each occasion it is recommended that 12.5 gm of powder is used for preparing kudineer. Besides pulverization 'extract embedment technique' in an appropriate vehicle is necessary to attain superior quality and associated therapeutic benefit.

The present study deals with different Kabasura kudineer formulations available in the market and how the 'extract embedment technique' using appropriate vehicle would offer accurate delivery of drug resulting in superior and consistent therapeutic benefit. Further our study also highlights the need of AYUSH to adopt and encourage 'extract embedment technique' to enhance the therapeutic superiority and acceptance of various traditional siddha concoctions.

Table 1 Images of market samples and formulation with extract embedded technology

Figure 1 Market sample 1

Figure 2 Market sample 2

Figure 3 Market sample 3

Figure 4 Market sample

MATERIALS AND METHODS

Description of Kabasura kudineer

It is an herbal concoction of 15 herbals and all herbs are present in equal amount. The following are the contents

1. Chukku (Rhizome) *Zingiber officinal*: 1 part (6.67%)
2. Tippili (Dried fruit) *Piper longum*: 1 part (6.67%)
3. Ilavangam (Flower buds) *Syzygium aromaticum*: 1 part (6.67%)
4. Cirukancori (root) *Tragia involucrata*: 1 part (6.67%)
5. Akkirakaram (Root) *Anacyclus pyrethrum*: 1 part (6.67%)
6. Mulli ver (root) *Hygrophilia auriculata*: 1 part (6.67%)
7. Kadukkaithol (Seed) *Terminalia chebula*: 1 part (6.67%)
8. Adathodai (Leaf) *Adathoda vasica*: 1 part (6.67%)
9. Karpooravalli (Leaf) *Anisochilus carnosus* : 1 part (6.67%)
10. Kostam (Root) *Costus speciosus*: 1 part (6.67%)
11. Seenthil (Stem) *Tinosporia cordifolia*: 1 part (6.67%)
12. Siru thekku (Root) *Clerodendrum serratum*: 1 part (6.67%)
13. Nilavembu (Aerial parts) *Andrographis paniculata*: 1 part (6.67%)
14. Vattathiruppi (Root) *Sida acuta*: 1 part (6.67%)
15. Koraikizhangu (Root tuber) *Cyperus rotundus*: 1 part (6.67%)

Each active is from different plant parts and also possess various densities.

EXPERIMENTAL WORK

Physical examination of Kabasura kudineer choornam

Four kabasura kudineer formulations marketed by different companies were used for the present study. The powder was spread evenly over a white paper to ascertain the powder characteristics.

Microscopic examination

All the four powder samples were examined under microscope to evaluate

1. Even in size
2. Fibrous materials
3. Materials with irregular shape etc.

Fig-1, Fig-2, Fig-3, Fig-4 are Market sample 1, Market sample 2, Market sample 3 and Formulation with extract embedded technique respectively.

RESULTS

The macroscopic or physical examination of the three market samples of Kabasura kudineer revealed that the product 1 and 2 showed bizarre unevenness in the particle size with high presence of twigs and fibrous structures, broken stems etc., as in Table 1. Because of uneven distribution of herbs depends on their density, in a fixed weight taken from the same will not have all herbs as defined theoretically.

The market sample 3 which was a pulverized kabasura kudineer formulation and the market sample formulated by extract embedded technique showed uniform powder characteristics at macroscopic level. However, when sieved through three sieves such as 70, 80 and 100 mesh size, the sample 3 yielded the percentage of particles in the following order such as 40, 42 and 18 ~~respectively~~ for 70, 80 and 100 mesh size sieves respectively.

Whereas the Kabasura kudineer formulated by extract embedded technology yielded 90% of the product is under 100 mesh particle size and only 10 % fall between 70 & 80 mesh size as in table 2. Since the Kabasura kudineer market samples 1 and 2 where so coarse that we could not do particle size analysis using the above sieves.

Table 2 Particle size Vis-à-vis Percentage of material passed at different mesh size

Samples tested	**Particle size vis-à-vis percentage**		
	70 mesh	80 mesh	100 mesh
Market sample 3	38	24	18
Market sample 4 (extract embedded technique)	100	100	90

Microscopy:

The product that was formulated by extract embedded technology (Market sample 3) using a base ~~vehicle~~ showed highly homogenous, uniform particle size with even distribution as in Table-3. Further the particles are evenly shaped as in Fig-1~~.~~ Microscopic image of market sample 4 showed the unequal distribution of materials with different shape and size and no commonality in the powder characteristics could be observed as in Fig-2.

Table 3 Microscopy images of market samples

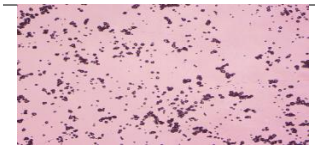

Figure 5 Market Sample 4

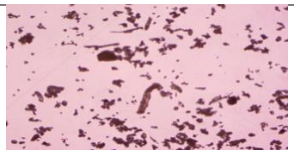

Figure 6 Market Sample 3

Fig-5 - Market sample 4: Market product with extract embedded technique

Fig-6- Market sample 3: Market sample evenly pulverized

DISCUSSION

AYUSH formulations mostly suffer 'quality trap' and otherwise the therapeutic efficacy of most of the AYUSH formulations are quite good, reliable and scientific.

Ancient scholars studied the human body-behavior (mind-body relationship) in detail and learned about the underlying 'life principle/force' that governs our life; which the AYUSH has defined as Tridosha.

AYUSH does not just consider all humans are same but every individual has a different physical & biochemical constitution. Hence the treatment approach followed in AYUSH is always holistic (mind-body relationship), individualistic and the habitat dependent.

Based on the body constitution of every individual and other micro and macro factors of the macrocosm around us (stellar and astral bodies) and factors like climate, whether change, circadian rhythm etc and their respective roles in causing various health complications, AYUSH has defined the treatment approach. Kabasura kudineer is one

such advanced formulation of siddha system of medicine.

Kabasura kudineer is a scientific craftsmanship of ancient siddha system of healing. The formulation is composed of 15 herbs with complimenting and conciliatory therapeutic benefits resulting in 'pharmacological competition' among 15 herbs to offer treatment. The above therapeutic benefit of kabasura kudineer is valued greatly for the management of COVID 19 at pandemic[4,5]. At the right time, with judicious thinking and prudent approach, siddha vidya have brought Kabasura kudineer to the central axis in the hour of crisis.

Although a proper scientific evidence for the therapeutic efficacy of Kabasura kudineer for COVID 19 is lacking but the low mortality rate of COVID 19 patients in Tamilnadu and the high recovery rate from infection suggests that Kabasura kudineer might have been the reason for the above[5,6]. The state government has provided Kabasura kudineer to everyone in the state from cradle to graveyard by championing from door to door. Today most of the states in India are looking at Tamilnadu and trying to understand what magical measure the state has taken to manage Corona. One and the only remarkable distinction the world can learn from TN is the possible inclusion of Kabasura kudineer in the management and treatment strategy of COVID 19.

One of the factors that limit the therapeutic benefits of AYUSH products is the quality of the finished product. Although most of the manufacturers may be adopting the usual quality norms but most of the quality control approaches are likely to push them into a trap called quality trap.

Quality trap is a situation or condition where the manufacturer or the formulator likely to derive quality satisfaction when all raw materials and the respective proportion is being used in the given formulation. Further all raw materials were also tested for ash value, extractive value etc.

The physical aspect of the formulation is only likely to cause the quality trap and not the therapeutic worthiness of the raw materials used. In kudineer churnam formulation, the different herbs used are likely to have varied density, powder characteristics, shape and size. When different herbal materials are even after pulverization to same size are likely to show heterogeneity in the finished formulation. Even the pulverized material is if sieved through a uniform mesh size but still such heterogeneity bound to occur. Such formulation is when stored in a container, with time the finer particles are likely to settle at the bottom and the herbal material with high fibrous characteristics will stay at the top.

When a known quantity of the powder is taken for the kudineer preparation, the known quantity may not have equal distribution of all herbs. Or else, the powder must be mixed evenly every time to get uniform mixture of all herbs. The above limitation of the kudineer choornam is likely to affect the therapeutic efficacy which may progressively turn against the efficacy of the AYUSH system in toto.

The only scientific method available to overcome the above limitation is the inclusion of technology in AYUSH.

The market sample 4 is manufactured by adopting extraction embedded technology by using an appropriate vehicle. This method ensures the extractable matter of all the herbs is evenly poised in the vehicle and hence a consistent therapeutic efficacy can be achieved from such formulation.

Although the present study is limited to macroscopy, microscopy and the particle size evenness and no clinical or laboratory evaluations were done, nevertheless the findings clearly show that the market sample 3 is likely to exhibit superior efficacy than rest of the three samples tested purely because of even and equal distribution of all herbs in the formulation.

REFERENCES

1. https://www.businessinsider.in/india/news/siddha-research-papers-throw-light-on-efficacy-of-kabasura-kudineer-in-managing-covid-19/articleshow/76460376.cms
2. https://www.thehindu.com/news/national/tamil-nadu/government-to-distribute-herbal-concoction-to-boost-immunity/article31415335.ece
3. Amruthavalli GV, Gayathri Rajagopal.(2016) Nilavembu Kudineer Churanam in the Market: Understand the True and Hyperbole Science Research and Reviews: A Journal of Unani, Siddha and Homeopathy. 3(3): 13–16p.
4. Pitchiah Kumar M. 1, K. Meenakshi Sundaram 2, Ramasamy M. S. 2*(2019)Coronavirus Spike (S) Glycoprotein (2019-Ncov) Targeted Siddha Medicines Kabasura Kudineer and Thonthasura Kudineer –In silico Evidence for Corona Viral Drug. Asian Journal of Pharmaceutical Research and Health Care, Vol 11(2), 1-9.
5. Saravanan J et al (2018). Anti-Inflammatory, Antipyretic and Antibacterial Study of Kabasura Kudineer Choornam. International Journal of Current Advanced Research, 07(2), pp. 9992-9997.
6. Thillaivanan. S, Parthiban. P, Kanakavalli. K, Sathiyarajeshwaran.P.(2015). A Review on "Kapa Sura Kudineer"-A Siddha Formulary Prediction for Swine Flu. International Journal of Pharmaceutical Sciences and Drug Research. 7(5): 376-383.