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RESEARCH ARTICLE

PHYTOCHEMICAL ANALYSIS OF TRIKATU CHURNA.

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Abstract

Trikatu churna is an ayurvedic polyherbal formulation of pippali, sunthi, marich whose botanical names are Piper longum Linn, Zingiber officinale, Piper nigrum Linn respectively. It has been used in diseases like agnimandya, Slipada, galaroga, swasa, kustha, pinasa, kasa. It has effective results in respiratory problems due to bronchodilator properties. It has also been used to lessen the production of phlegm. Trikatu churna is hot in potency. It is stimulative in nature, good for liver, spleen and pancreas. It also stimulates stomach to produce different enzymes. Hence it helps in digestion. It is useful in improving digestive fire and promotes the proper breakdown of food and it also increases appetite and also regulate the formation of hydrochloric acid which further help to prevent gaseous distention. It is also used to lower the cholesterol and triglycerides. Trikatu churna also improves blood channels via detoxifying properties. It provides relief from joints pain and stiffness in case of gout. This study was undertaken to standardize the trikatu churna through pharmaceutical evaluation. The sample was subjected for phytochemical and various physico-chemical parameters like total ash (4.59%), acid insoluble ash (0.91%) LOD (10.06%), PH (10% Aq.sol) (5.46%), alcohol soluble extractive (8.64%), water soluble extractive (25%). Moreover it contains various phytochemical like phyto sterol, alkaloids, carbohydrates, phenol etc. Thus the physico-chemical character's may provide guidelines for the standardization of powder formulation of trikatu churna.

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Introduction:-

Trikatu churna also known as Trayushana ushna means hot or pungent.⁶

1. **Deepana:** It improves digestion strength
2. **Shleshmaghna:** It balance Kapha dosha.
3. **Medaghna:** It burns fat, reduces cholesterol level.
4. **Kustha:** Useful in skin diseases.
5. **Peenasa:** Useful in running nose, allergic rhinitis.
6. **Jayet arochakam:** Relieves anorexia
7. **Meha:** Useful in diabetes
8. **Gulma:** Useful in abdominal tumour, bloating
9. **Galaroga:** useful in throat infection and diseases.

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Trikatu for ascites¹:-

For the patient suffering from kaphaja type of udara roga (ascites with kapha dosha dominance).
Trikatu is also useful in

Respiratory infection:-

The three ingredients are warming and expectorant. This makes trikatu effective against respiratory infection.^{2,5}

Trikatu improves digestion and assimilation. Trikatu churna is good for person suffering from impaired digestion, bloating, gaseous distention, poor absorption of nutrients. It is excellent herbal remedy. Marich & pippali both contain pungent alkaloid piperine. It is liver protective analgesic, gastroprotective & influences digestive fire & reduces kapha. Trikatu pacifies aggravated kapha in the respiratory and digestive tract. Studies in trikatu churna shows its antibacterial properties. It reduces lipid and cholesterol level of blood. It stimulates metabolism, better digestion of fats, protein and thus helps to reduce obesity.⁵

Trikatu churna improves immunity, acts as rasayan.it triggers natural immune system to fight against bacterial infections. It reduces lipid and cholesterol levels in blood.¹

Stimulates metabolism, better digestion of fats, protein &thus helps to reduce obesity.

In this study trikatu churna was subjected to pharmaceutical evaluation. (Evaluation phytochemicals and different physicochemical parameters) in order to prepare a profile of the evaluation.

Materials and methods –for this 1 kg of pippali, 1 kg of marich,1 kg of sunthi were fixed. The powder was sent to DTL, Govt. Ayurvedic College, Guwahati and the phytochemicals in different solvent extract, organoleptic analysis & physicochemical analysis were done. Organoleptic characteristics colour, odours were done as per standard characteristics. In this phase following parameters were carried out. For e.g.- the powder form was prepared in the state Ayurvedic pharmacy at Govt. Ayurvedic College & Hospital Guwahati, Assam.

Physicochemical analysis:-**Table 1:-Organoleptic character-**

1. Parameters- Trikatu churna.
2. Sample- fine powder.
3. Odour-aromatic
4. Color-yellowish green
5. Taste-pungent

Table 2:-Results of test or analysis-

Test	Result
1. Total ash	4.59%
2. Acid insoluble ash	0.91%
3. LOD	10.06%
4. PH (10%aqueous solution)	5.46%
5. Alcohol soluble extractive	8.64%
6. Water soluble extractive	25%

Table 3:-Results of qualitative estimation of phytochemicals in different solvent extracts of trikatu churna-

Phytochemicals	petroleum ether	acetone	chloroform	ethanol
Phytosterols	present		present	present
Carbohydrates	present		present	present
Phenol	present		present	present
Tannin	present		present	present
Alkaloids	present		present	present
Flavonoids	absent		absent	absent
Steroids	absent		absent	absent
Triterpenoids	present	present	present	present
Glycosides	absent	absent	absent	absent

Table-4:-Derivation Of Trikatu Churna^{2,3,4}

Name	Botanical name	Synonyms	Pharmacological properties	Therapeutic action	Formulation
PIPPALI	Piper longum Linn	Kana, Krsna, Kala, Capala, Tiksna, Tandula	Rasa-katu. Guna-laghu Virya-ushna Vipaka-madhura	Used in toothache, asthma, cholera, indigestion, stomachache, fever etc.	trikatu churna, guda pippali
ADRAKA/SUNTHI	Zingiber officinale	Nagara, srngavra, visva, visvabhejasa, katubhadra	Rasa – katu. Guna – laghu. Virya- ushna Vipaka- madhur. Dosha karma- kapha vata samak.	Abdominal Pain, Anorexia, Oedema, Indigestion, Arthritis, Colitis	Panchaka Churna, Samasarkara Churna
MARICHA	Piper nigrum Linn	Usana, Krsna, Dhanvantari, Dharmapattana, Vellaja, Sakanga	Rasa –katu Guna –tikshna ,laghu. Virya –ushna. Vipaka-katu Doshakarma- kaphavatahara	Appetizer, Carminative and Anti Microbial	Trikatu churna, Marichadi taila, Talisadi churna

Therapeutic Dose⁵:-1 to 3 gm

Anupan⁵:-honey or luke warm water

Discussion:-

The phytochemical study was done to study about presence of phytosterol, carbohydrate, phenol, tannin, alkaloids, glycosides, steroids, flavonoids, triterpenoids etc. in different solvent like- petroleum, ether, chloroform, acetone, 10% ethanol. In the study it is observed that, there are presence of alkaloids, phytoterol, carbohydrate, phenol, tanins, alkaloids & triterpenoids are present. But there are absence of flavonoids, steroids & glycosides.

Moreover in physicochemical analysis it is revealed that its Ph is 5.46, alcoholic soluble extractive 8.64% & water soluble extractive 25%.

Conclusion:-

The study on trikatu churna is preliminary steps towards the physio-chemical standardization of polyherbal formulation in powder form. As there is very less information's are available on physico-chemical profiles of trikatu churna, this could be informative for the similar type of research work in future.

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