Published online in http://ijam.co.in ISSN No: 0976-5921

International Journal of Ayurvedic Medicine, Vol 11 (2), 255-260

Efficacy of Bibhitakavaleha in Management of Kaphaja Kasa with special reference to Chronic Bronchitis

Research Article

Sadhana Misar Wajpeyi[1*], Manish Deshmukh[2], Nandini Bhojraj[3]

1. Professor, Department of Kayachikitsa, MGAC & RC, Salod (H),Wardha, Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi (M), Wardha
2. Deputy Director, Interdisciplinary of Research, Datta Meghe Institute of Medical Sciences, (Deemed to be University), Sawangi (M) Wardha
3. Chief Ayurved Consultant, Govigyan Anusandhan Kendra, Nagpur

Abstract

Kasa is the disease of *Pranavaha strotas.* It may develop as an independent disease, symptom or complication. In *Kaphaja Kasa Kasavega* is associated with *Bahala Ghana Nishtivana.* It can be correlated with Chronic Bronchitis due to similarities of signs and symptoms. Chronic Bronchitis is characterized by productive cough associated with sputum for at least 3 consecutive months for more than two successive years. The initial symptoms are repeated attacks of productive cough which shows a steady increase in severity during the winter months and present all the year round with recurrent respiratory infections. Ayurveda described many herbomineral formulations for management of *Kasa*. One such formulation *Bibhitakavaleha* is mentioned in *Gadanigraha*, which consists of *Bibhitaki* (*Terminalia bellerica* Roxb.), *Gomutra* (Cow urine) and *Madhu* (Honey). Methods: In this case series 30 patients having classical symptoms of *Kaphaja Kasa* were treated with *Bibhitakavaleha* 10gm twice a day with lukewarm water for 15 days with the aim to prove the efficacy of it in the management of *Kaphaja Kasa*. Subjective criteria like *Kasavega, Kasa nishtiva, Shwaskricchrata, Peenas, Shirshool* and *Aruchi* with Laboratory parameters like TLC (Total Leukocyte Count), Neutrophils, Absolute Eosinophil Count (AEC) and ESR (Erythrocyte Sedimentation Rate) were assessed before and after treatment. Result: Significant improvement was observed in all parameters after treatment. *Bibhitaki* possesses *Kashaya Rasa*, *Madhura* Vipaka, *Ushna Veerya & Laghu, Ruksha Guna* which plays a major role in relieving *Kasa*. Conclusion: Hence it can be concluded that *Kaphaja Kasa* can be effectively treated with *Bibhitakavaleha.*

Key Words: *Bibhitakavaleha*, Chronic bronchitis, *Kaphaja kasa, Kasavega.*

Introduction

Kasa is the debilitating disease of *Pranavaha strotas*, when untreated, it may lead to dreadful diseases like *Shwasa (*Asthma*), Shosha (*cachexia*), Rajyakshama (*tuberculosis*), Urakshata* (chest injury*)* and *Rakttapitta* (bleeding like haemoptysis) (1).*Kasa* may develop as an independent disease, symptom or complication of a disease. *Kasa* is broadly classified as *Ardrakasa* and *Shushkakasa*. *Kaphaja Kasa* is a type of *Ardra Kasa* dominated by *Kapha* and *Vatadushti*. *Vata* and *Kapha* are the two key pathological factors involved in the *Samprapti* (etiopathogenesis) of *Kaphaja Kasa* (2).

Kaphaja Kasa is one of *Pranvahastrotodusti Janita Vyadhi* where *Kasavega* is associated with *Bahala Ghana Nishtivana*. It can be correlated with Chronic Bronchitis due to similarities of signs and symptoms. Chronic Bronchitis is characterized by cough associated with sputum for at least 3 consecutive months for more than 2 successive years. The initial symptoms are repeated attacks of productive cough which shows a steady increase in severity during the winter months and present all the year round with recurrent respiratory infections (3).

According to estimates from national interviews taken by the national center for health statistics approximately 9.5 million people or 4% of the population were diagnosed with Chronic Bronchitis. In one study acute bronchitis affected 44 of 1000 adults annually. Chronic Bronchitis is more prevalent in people older than 50 years (4).

According to National center for health statistics, 62 million cases of common cold and cough occurs each year. Cough is the fifth most common symptom for which patients seeks medical care. Ayurveda described many herbomineral formulations for management of *Kasa*. One such formulation *Bibhitakavaleha* is mentioned in *Gadanigraha* (5), which consists of *Bibhitaki* (*Terminalia bellerica*

*** Corresponding Author:**
Sadhana Misar Wajpeyi
Professor, Department of Kayachikitsa,
MGAC & RC, Salod (H),Wardha,
Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi (M), Wardha. India
Email Id: sadhanamisar@gmail.com

Roxb.), *Gomutra* (Cow urine) and *Madhu* (Honey). *Bibhitaki* is indicated by *Acharya Vagbhata* in all types of *Shwasa* & *Kasa* (6). *Bibhitaki* possess *Kashaya Rasa*, *Madhura* Vipaka, *Ushna Veerya* & *Laghu, Ruksha Guna* (7) which plays a major role in relieving *Kasa*.

Need of the study

As *Pranavaha Strotas* conveys *Prana*, any disease affecting this *Strotas* has to be treated with priority. *Kaphaja Kasa* may not be life threatening but increasingly annoying and irritating to the individual in his routine activity. When neglected it may lead to a series of complications later.

In recent years, there has been surprisingly increase of incidence related to Respiratory system because of the exposure to both active and passive smoke, air pollution, occupational hazards (8). No research Study on *Bibhitakavaleha* in management of *Kaphaj Kasa* was conducted yet. Hence a clinical study will be planned to prove efficacy of it in management of *Kaphaja Kasa*.

Aims and Objectives

Aim: Study the efficacy of *Bibhitakavaleha* in *Kaphaja Kasa*

Objectives

- To assess the efficacy of *Bhibhitakavaleha* in *Kasa Vega* and *Kasa Nishtivana*
- To assess the effect of *Bibhitakavaleha* in *Shwaskricchrata* (Dyspnoea)
- To know the effect of *Bibhitakavaleha* on Laboratory parameters like TLC (Total Leukocyte Count), Neutrophils, Absolute Eosinophil Count (AEC) and ESR (Erythrocyte Sedimentation Rate)

Materials and Methods

- **Source of study**: The Patients were selected from *Kayachikitsa* O.P.D. and I.P.D. of Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (H) and from peripheral camps.
- **Study Design**: Single arm
- **Study Type**: Interventional study
- **Sample size**: 30

Inclusion criteria

- Patients aged between 20 and 70 years of either sex
- Patients having cardinal features of Chronic Bronchitis (Chronic cough, Excessive sputum production, Dyspnoea).
- Patients with COPD mild and moderate grade (GOLD guidelines).

Exclusion Criteria

- Known cases of Tuberculosis, Lung cancer, Bronchiectasis, Interstitial lung disease, CHD, DM, Pneumonia, Pneumothorax.
- Pregnant women and lactating mothers.

Selection of Material

Bibhitakavaleha was procured from Govigyan Anusandhan Santhan, Deolapar, Nagpur (MS).

Table 1: Composition of Material

Sr.no.	Name of drug	Latin name	Part used
1	*Bhibhitaki*	*Terminalia belerica* Roxb.	Fruit
2	Gomutra	Cow Urine	Mutra
3	Honey	*Mel*	-

Safety Profile

Toxicity study of *Bibhitaki*- Thanabhorn S. *et al*. (2009) conducted acute and sub acute toxicity studies as per the OECD guidelines. Single oral administration of the ethanolic extract of T. *belerica* at a dose of 5,000 mg/kg did not produce any toxicity. In sub acute toxicity, repeated administration of 1,000 mg/kg of T. *belerica* over 14 days did not cause changes in terms of general behaviors, mortality, weight gain, hematological or clinical blood chemistry parameters. The results of histological examinations showed normal appearance of the internal organs when compared to those of the control group (9).

Toxicity study of Gomutra

In acute toxicity study, no toxicity was observed even when cow urine was given 32ml/kg which was 32times of the study dose, which suggests that cow urine is having very high therapeutic index. Although no histopathological studies were undertaken, it was surmised that *Gomutra Arka* is safe in animals (10).

Toxicity of honey

A study conducted on mice results suggested the harmful side effects of cadmium on liver and kidney, and it was concluded that honey via its antioxidant activity has the ability to protect against cadmium induced hepatotoxicity and nephrotoxicity (11). No any toxic effects of honey were noted on liver and kidney (12).

Posology

- **Dose** 10gm two times a day after meal with lukewarm water
- **Duration** - 15 days
- **Follow up** -During of treatment- After 7th and 15th day. After treatment-30 days

Investigations

- Total Leukocytes Count
- Differential count
- Erythrocyte Sedimentation Rate
- Absolute Eosinophil count

Assessment Criteria

- Patients were assessed for subjective and objective criteria on 0, 7, 15 day

Table 2: Subjective Criteria

SN	Criteria	**0**	**1**	**2**	**3**
1	*Kasa Vega* (Bouts of cough)	No coughing	Coughing 1 to 3 times in 24hrs.	Coughing 4 to 6 times in 24hrs	Coughing more than 6 times in 24hrs.
2	*Kasa Nishtivana* (Sputum)	No sputum	Sputum early in the morning	Sputum 2 - 3 times daily	Sputum with each coughing
3	*Shwaskricchrata* (Breathlessness)	No breathlessness except with strenuous exercise	Breathlessness when hurrying on the level or walking up a slight hill	Stops for breath after walking about 100 m or after a few minutes on level ground	Too breathless to leave the house or breathless when dressing or undressing
4	*Shirshool* (Headache)	No *Shirshool*	*Shirshool* Occasionally	*Shirshool* Frequently	Continuous *Shirshool* which disturbs day to day activities
5	*Peenas* (Cold)	Absent	Present	-	-
6	*Agnimandya* (Loss of appetite)	Absent	Present	-	--
7	*Aruchi* (Tastelessness)	Absent	Present	-	-

Objective criteria

Objective criteria Total Leukocyte Count (TLC), Differential Leukocyte Count (DLC), Erythrocyte Sedimentation Rate (ESR) and Absolute Eosinophil Count (AEC) were assessed before and after treatment.

Observations and Results

Statistical analysis was done by using descriptive and inferential statistics using chisquare test, student's paired t test and Wilcoxon signed rank test and software used in the analysis was SPSS 24.0 version and Graphpad Prism 7.0 version and $p<0.05$ is considered as level of significance.

Age wise distribution of patient showed that maximum patients 13 (43.33%) were in the age group of 51-60 yrs. In this study number of male patients were more that is 17 (56.67%) as compared to female. Occupation wise distribution showed that maximum patients were housewives 11 (36.67%). In this study maximum patients 14(46.67%) belonged to lower socioeconomic group. In this study family history was present in 16 (53.33%) patients, maximum patients 14 (46.67%) had not addicted to any type of habit, 16(53.33%) patients were taking vegetarian diet, 18(60%) patients had no history of any type of allergy and sleep was disturbed in 16 (53.33%) patients. In this study14 (46.67%) patients had *madhyam akruti, jivha* was *saam* in 17(56.67 %) patients, *vatakapha prakruti* was found in 13 (43.33%) patients, 17 (56.67 %) patients had *mandagni* and 16 (53.33%) patients had *madhyam koshtha*.

Table 3: Comparison of *Kasavega* before and after treatment
Wilcoxon signed rank test

	Mean	N	Std. Deviation	Std. Error Mean	z-value
BT	2.60	30	0.49	0.09	21.52 P=0.0001, S
AT	0.36	30	0.49	0.08	

Table 4: Comparison of *Kaphanishtivana* before and after treatment
Wilcoxon signed rank test

	Mean	N	Std. Deviation	Std. Error Mean	z-value
BT	2.70	30	0.53	0.09	17.94 P=0.0001,S
AT	0.40	30	0.49	0.09	

Table 5: Comparison of *Shwasakruchrata* before and after treatment
Wilcoxon signed rank test

	Mean	N	Std. Deviation	Std. Error Mean	z-value
BT	1.46	30	0.62	0.11	12.33 P=0.0001,S
AT	0.06	30	0.25	0.04	

Table 6: Comparison of *Shirshool* before and after treatment
Wilcoxon signed rank test

	Mean	N	Std. Deviation	Std. Error Mean	z-value
BT	1.20	30	0.84	0.15	7.30
AT	0.03	30	0.18	0.03	P=0.0001,S

Table 7: Comparison of *Peenas* before and after treatment

Peenas	BT	AT	X2-value
Present	23(76.67%)	0(0%)	49.09
Absent	7(23.33%)	30(100%)	P=0.0001,S
Total	30(100%)	100(100%)	

Table 8: Comparison of *Agnimandya* before and after treatment

Agnimandya	BT	AT	X2-value
Present	15(50%)	0(0%)	20.00
Absent	15(50%)	30(100%)	P=0.0001,S
Total	30(100%)	100(100%)	

Table 9: Comparison of *Aruchi* before and after treatment

Aruchi	BT	AT	X2-value
Present	15(50%)	0(0%)	20.00
Absent	15(50%)	30(100%)	P=0.0001,S
Total	30(100%)	100(100%)	

Table 10: Comparison of Hb% before and after treatment
Student's paired t test

	Mean	N	Std. Deviation	Std. Error Mean	t-value
BT	12.85	30	1.40	0.25	3.49
AT	13.13	30	1.23	0.22	P=0.002,S

Table 11: Comparison of TLC before and after treatment
Student's paired t test

	Mean	N	Std. Deviation	Std. Error Mean	t-value
BT	8523.33	30	2464.04	449.87	2.74
AT	7710.00	30	1684.48	307.54	P=0.010,S

Table 12: Comparison of Neutrophil before and after treatment
Student's paired t test

	Mean	N	Std. Deviation	Std. Error Mean	t-value
BT	65.15	30	8.50	1.55	2.72
AT	61.80	30	6.30	1.15	P=0.011,S

Table 13: Comparison of Eosinophils before and after treatment
Wilcoxon Signed Rank test

	Mean	N	Std. Deviation	Std. Error Mean	z-value
BT	2.40	30	1.03	0.18	3.45
AT	1.83	30	0.53	0.09	P=0.002,S

Table 14: Comparison of AEC before and after treatment
Student's paired t test

	Mean	N	Std. Deviation	Std. Error Mean	t-value
BT	196.63	30	81.34	14.85	4.16
AT	138.40	30	45.90	8.38	P=0.0001,S

Table 15: Comparison of ESR before and after treatment
Student's paired t test

	Mean	N	Std. Deviation	Std. Error Mean	t-value
BT	46.00	30	22.14	4.04	8.18
AT	28.30	30	12.65	2.30	P=0.0001,S

Mean of *Kasavega* before treatment was 2.60 which reduced to 0.36 after treatment. Significant improvement was observed in *Kasavega* after treatment with significant p value (21.52, P=0.0001). Mean of *Kaphanishtivana* before treatment was 2.70 which reduced to 0.40 after treatment. Significant improvement was observed in *Kaphanishtivana* after treatment with significant P value (17.94, P=0.0001). Mean of *Shwasakruchrata* before treatment was 1.46 which reduced to 0.06 after treatment. Significant improvement was observed in *Shwasakruchrata* after treatment with significant P value (12.33, P=0.0001). Mean of *Shirshool* before treatment was 1.20 which reduced to 0.03 after treatment. Significant improvement was observed in *Shirshool* after treatment with significant P value (7.30, P=0.0001). *Peenas* was present in 23(76.67%) patients before treatment but after treatment it was absent in all. Complete improvement was observed in *Peenas* with significant P value (49.09, P=0.0001). *Agnimandya* was present in 15(50%) patients before treatment but after treatment it was absent in all. Complete improvement was observed in *Agnimandya* with significant P value (20.00, P=0.0001). *Aruchi* was present in 15(50%) patients before treatment but after treatment it was absent in all. Complete improvement was observed in *Aruchi* with significant P value (20.00, P=0.0001).

Mean of Hb% before treatment was 12.85% which increased to 13.13% after treatment. Significant improvement was observed in *Shirshool* after treatment with significant P value (3.49, P=0.002). Mean of TLC before treatment was 8523.33 which decreased to 7710.00 after treatment. Significant improvement was observed in TLC after treatment with significant P value (2.74, P=0.010). Mean of Neutrophil before treatment was 65.15 which decreased to 61.80 after treatment. Significant improvement was observed in Neutrophil after treatment with significant P value (2.72, P=0.011). Mean of Eosinophils before treatment was 2.40 which decreased to 1.83 after treatment. Significant improvement was observed in Eosinophils after treatment with significant P value (3.45, P=0.002). Mean of AEC before treatment was 196.63 which decreased to 138.40 after treatment. Significant improvement was observed in AEC after treatment with significant P value (4.16, P=0.0001). Mean of ESR before treatment was 46.00 which decreased to 28.30 after treatment. Significant improvement was observed in ESR after treatment with significant P value (8.18, P=0.0001).

Discussion

Kasa is a *vyadhi* of *pranavaha strotas* and *Kaphaja Kasa* is a type of *Ardra Kasa* in which there is *Kapha* and *Vatadushti*. In this study *Bibhitakavaleha* was used in *Kaphaja kasa* which is mentioned in *Gadanigraha* (13).

In this study total 30 patients having classical symptoms of *Kaphaja Kasa* were treated with *Bibhitakavaleha,* 10gm twice a day with lukewarm water for 15 days. Patients were assessed for subjective as well as objective criteria before and after completion of treatment. Patients were assessed for subjective criteria like *Kasavega*, *Kaphanishtivana*, *Shwaskruchrata, Shirshool, Peenas, Agnimandya* and *Aruchi*. Objective criteria were Hb%, Total Leucocyte Count, Neutrophils, Eosinophils, Absolute Eosinophil count and Erythrocyte Sedimentation Rate.

In this study significant improvement was observed in all subjective as well as objective parameters after completion of treatment. Ingredients of *Bibhitakavaleha* are *Bibhitaki* (*Terminalia bellerica* Roxb.), *Gomutra* and Madhu. *Acharya Charak* included *Bibhitaki* in *Kasahar* and *jwarhar dravyas* (14).

Bibhitaki is indicated by *Acharya Vagbhata* in all types of *Shwasa* & *Kasa*· *Bibhitaki* is *Kashaya Rasa, Madhura Vipaka, Ushna Veerya & Laghu, Ruksha Guna* which plays a major role in relieving *Kasa*. It has *kaphavata shamak* property which helps in pacification thereby balancing *doshas*. *Mruduvirechaka* property of *Bibhitaki* helps in *vatanulomana* and normalizes *gati* of *vata* (15). It possesses *Rasayana* property which helps in boosting immune system (16).

Ayurvedic texts classify *Bibhitaki* under the group of herbs that are useful in treating cold, cough and fever (17). It is said to be having a balancing effect on *Kapha* and *Pitta*. *Gomutra* possesses antimicrobial and immune-modulatory property that helps in reducing symptoms of *Kaphaja kasa* (18).

Madhu (honey) helps in reducing *Kasavega* and *Kaphanishtivana*. Honey has antimicrobial, antioxidant and anti-inflammatory properties. Research study reported that in temperate climates and places with considerable temperature fluctuations, honey is a well-known remedy for colds and mouth, throat or bronchial irritations and infections (19). There is increasing evidence that a single dose of honey might reduce mucus secretion and reduce cough in children. In a research study conducted on healthy men, honey showed good demulcent effect and antioxidant properties, and increased cytokine release, which might be due to its antimicrobial effects (20).

In this study 30 patients of *Kaphaja kasa* were treated with *Bibhitakavaleha*. It gave a significant improvement in all subjective parameters. Objective parameters like Hb%, TLC, DLC, AEC and ESR have no much significant role in assessment of cough. So to evaluate the efficacy of *Bibhitakavaleha*, more specific objective parameters like Lung Function Test should be taken and further study should be conducted on large sample size. To prove efficacy of *Bibhitakavaleha* a comparative study should be conducted by taking standard drug as a control group with blinding.

Conclusion

Kaphaj kasa can be managed effectively by herbal formulation *Bibhitakavaleha* mentioned in *Gadanigraha*.

Acknowledgement

I am thankful to my institute MGACH & RC, Salod (H), DMIMS (DU), Wardha and all those help me in this research work.

Conflict of interest - No any

Funding - Drug supplied by Govigyan Anusandhan Santhan, Deolapar, Nagpur.

References

1. Shastri Sadashiva Paradakara, Ashtanga Hridaya of Vagbhata, Nidana Sthana, Raktapittaniadana, , Sarvangasundara of arunadutta and Ayrveda Rasaya of Hemadri commentaries, Sixth edition, chapter 3/18, 2010, 469-472.
2. Yadhavji Trikamji, Charakasamhita of Agnivesh, Chaukhambha Sanskrit Sansthan Varanasi; 2011, pp. 433
3. Nicki R. Colledge Brian R.Walker, StuartH.Ralston, Davidson's principles and practice of Medicine, 21st edition 2010 p.671-673
4. Jazeela Fayyaz, Chronic Bronchitis, Medscape, March 2011http: // emedicine.medscape.com/ article/297108- overview#a0156.(cited on 12.4.2019 at 11.30 pm)
5. Pandeya Ganga Sahaya, Sodhala, Gadanigraha, The Vidyotini Hindi commentary, Part I (Prayoga Khand), Lehadhikar.Chaukhamba Sanskrit Sansthan,Varanasi.,p.307
6. Tripathi Bramhanand, Ashtanga Hridaya, 1st ed. Reprint (2007) Pg no 607
7. Chunekar K.C, Bhavaprakasha Nighamtu, Chaukamba Bharti Academy, Varanasi, Haritkyadivarga Revised edition 2010 pg no.9.
8. Sharma S.K, Chronic obstructive Pulmonary Disease, API text book of Medicine, Edited by Siddharth N.Shah, 8 Edition, The Association of Physicians of India, Mumbai, 2008,PP 361-367.
9. Thanabhorn S, et.al. Acute and Sub acute Toxicities of the Ethanol Extract of fruit of *Terminalia belerica* Journal of Pharmacuetical sciences,2009
10. Devender O. et.al., Evaluation of antidiabetic, antioxidant effect and safety profile of gomutra ark in Wistar albino rats Anc Sci Life. 2012 Jan-Mar; 31(3): 84–89.
11. Wafaa M. et.al. The potential protective effect of natural Honey againstCadmiuminduced Hepatotoxicity and Nephrotoxicity; Mansoura J. Forensic Med. Clinical Toxicology. 2007;15 (2) .
12. Bhalchandra Waykar and Yahya Ali Alqadhi,Biological Properties and Uses of Honey: A Concise Scientific reviewIndian J. Pharm. Biol. Res. 2016; 4(3):58-68
13. Pandeya Ganga Sahaya, Sodhala, Gadanigraha, , The Vidyotini Hindi commentary,Part I(PrayogaKhand), Lehadhikar.Chaukhamba Sanskrit Sansthan,Varanasi.,p.307
14. Yadavji Trivikramji, Charaka Samhita of Agnivesha, Sutrasthana Shdvirechanashatashritiya Adhyaya (4/16). Varanasi: Chaukhambha Sanskrit Sansthan; 2009.p.34.
15. Sharma P, Dhanvantari Nighantu,Guduchyadi varga,Verse 202-206,Chaukhamba orientalia, Reprinted edition 2008,p-53.
16. Arunadatta, Astanga hridaya, Sarvanga Sundara Vyakya, Vaidya H.P. Krishnadas Academy of Varanasi, 1995; 575-602.
17. Gilani H.A., et.al. Mechanisms underlying the antispasmodic and bronchodilatory properties of Terminalia belerica fruit. J Ethnopharmacol. (2008). 116:528-538.
18. Prashith Kekuda et.al. Cow Urine Concentrate : A potent agent with Antimicrobial and Anthelmintic activity.Journal of Pharmacy Research 2010, 3(5),1025-1027.
19. Bhalchandra Waykar and Yahya Ali Alqadhi. Beekeeping and Bee Products; Boon for Human Health and Wealth. Indian J. Pharm. Biol. Res.2016; 4(3):58-68.
20. Ran D. Goldman, Honey for treatment of cough in children, Can Fam Physician. 2014 Dec; 60(12): 1107–1110.

*****