

APPLICATION OF AYURVEDA HERBS IN THE MANAGEMENT OF IRRITABLE BOWEL SYNDROME

¹Dr Rashmi Patekar ²Dr Mohan Lal Jaiswal

¹Ph.D Scholar, ²Associate Professor, P.G. Dept. of Dravyaguna Vigyan, National Institute of Ayurveda, Jaipur, Rajasthan, India.

ABSTRACT

Irritable bowel syndrome (IBS) is a multifactorial lifestyle disorder in which abdominal pain is associated with defecation or change in bowel habit with features of disordered defecation and distension. Approximately 20% of general population fulfils diagnostic criteria for IBS but only 10% follows doctor's consultation because of gastrointestinal symptoms. IBS is associated with disturbed abdominal gastro intestinal motor function and enhanced visceral perception as well as psychological and genetic factor. Anxiety and somatization are more common in IBS than in the general population, however, they correlate poorly with symptoms. In Ayurveda rationally it can be correlated with Grahani, Sangraha Grahani and Ghatyantra Grahani on the basis of its clinical manifestation. Grahani is a disease of gastrointestinal tract which is produced due to weakness of Agni (digestive fire) causing food to be either partially digested or over digested leading to the formation of Ama-toxins. The management of IBS is thus closely dependent upon the management of Agni and Ama. Many Ayurveda herbs mentioned in classics for Grahani treatment are successfully used in the management of IBS. The paper will critically do a review of Ayurveda herbs useful in management of IBS.

KEYWORDS: IBS, Ayurveda, Herbal management.

INTRODUCTION

Irritable bowel syndrome (IBS) is a functional bowel disorder characterized by abdominal pain, altered bowel habits in the absence of structural abnormalities¹. Approximately 20% of general population fulfils diagnostic criteria for IBS but only 10% needs doctor consultation because of gastrointestinal symptoms². Young women are affected 2-3 times more often than men. It is conceptualized as a 'cluster of bowel syndrome' often called by a large variety of names, like spastic colitis, irritable colon syndrome, nervous diarrhoea, mucus colitis, colon neurosis, etc². The principal

abnormality is a disturbance of bowel motility which is modified by psychosocial factors.

IBS symptoms tend to come and go over time and often overlap with other functional disorders such as fibromyalgia, headache, backache and genitourinary symptoms¹. Severity of symptoms varies and can significantly impair quality of life³ making people unable to work and visiting doctor more frequently than general population⁴. The multifactorial nature of this disease has created a challenge before the conventional bio-medicine in cure of this disease

completely. So there is need to seek for alternative system of medicine like Ayurveda for its management. It is difficult to have correlation between IBS and any particular disease in Ayurveda but based on clinical manifestation rationally it can be correlated with Grahani, Sangraha Grahani and Ghatiyatra Grahani which is a disease of gastro intestinal tract. Grahani is a chronic disease and is mainly produced due to impairment of Agni, which burns within the stomach and is mostly affected by incorrect lifestyle and eating habits⁵. Impaired digestive fire affect the digestive process causing food to be either partially digested or over digested leading to the formation of Ama-toxins. This ultimately weakens the function behind the digestive process itself.

The management of IBS is thus closely dependent upon the management of Agni and Ama. Many Ayurveda herbs mentioned in classics can be successfully used in the management of IBS. Finally, Ayurveda states that the knowledge and principle based rationale of the physician is the ultimate deciding factor in deciding which herbs to use.

Clinical manifestation of Irritable Bowel Syndrome¹

The exact cause of Irritable Bowel Syndrome is unknown. Some of possible causes are impaired lifestyle and food habits, psychological factors like stress, anxiety etc. and other illness like episodes of enteric infections and small bowel bacterial growth. Pain or abdominal discomfort is a key symptom for the diagnosis of IBS and have their onset associated with a change in frequency or form of stool. Pain is

exacerbated by eating or emotional stress and improved by passage of flatus or stools. Supportive symptoms include painless diarrhea or constipation, urgency or a feeling of incomplete bowel movement, passing mucous and bloating, altered bowel habits, depression and upper GI symptoms like – dyspepsia, heartburn, nausea and vomiting. Bleeding is not a feature of IBS unless hemorrhoids are present, and malabsorption or weight loss does not occur.

Irritable Bowel Syndrome and Ayurveda

There is no exact synonym or equivalent term for Irritable Bowel Syndrome in Ayurveda classics. As it has been rightly said that it is not always possible to name a particular disease and not all diseases can be given a definite nomenclature⁶. It is the deranged dosha that cause different diseases base on the site of their aggravation and localization. A physician should try to examine and understand a disease by all its symptoms and then management to get better results⁷. Instead of trying to find an exact synonym of it, we may attempt to find the most possible correlate so that the dosha involvement in this clinical entity could be done at the level of aetiology or aetiopathogenesis or at the level of symptomatology.

Thus on the basis of its clinical manifestation rationally it can be correlated with Grahani, Sangraha Grahani and Ghatiyatra Grahani mentioned in classical text. Clinical symptoms of Grahani, Sangraha Grahani and Ghatiyatra Grahani are as follows.

Grahani⁸: Occasional hard and soft stool, tastelessness, altered taste in tongue, nausea, fainting, edema in upper and lower

extremity, pain in the joint, vomiting, fever, bitter and acid eructation exuding the smell of metal and raw meat.

Vataja Grahani⁹: Dryness of throat and mouth, increase of hunger and thirst, faintness, noises in the ear, frequent attacks of pain in the sides, thighs, groins and the neck, acute gastro intestinal irritation, cardiac pain, emaciation, debility, dysgeusia, griping pain, craving for all kinds of tastes, asthenia of the mind, bloating which increases on empty stomach and relieved by taking food, cough and dyspnoea.

Pittaja Grahani¹⁰: Bluish yellow or yellow coloured loose stool containing undigested food material, eructation with foul smell and sour taste, burning sensation in the cardiac region and throat, anorexia and excessive thirst.

Kaphaja Grahani¹¹: Nausea, vomiting, stickiness and sweet taste in the mouth, cough, salivation, chronic rhinitis, feeling of sluggishness in the cardiac region, numbness and heaviness in the abdomen, eructation with foul smell and sweet taste, low libido, passing of split stool mixed with mucous and heavy in nature, no emaciation but feeling of weakness and indolent.

Tridoshaja Grahani¹²: The mixed symptoms of Vataja, Pittaja and Kaphaja Grahani are found.

Amaja Grahani: Separate Amaja Grahani type is mentioned by Sharangadhara¹³. Charaka has not mentioned separate type but has described Grahani disease associated with Ama. Constipation, salivation, pain, burning sensation, anorexia and heaviness are the associated symptoms of Grahani with Ama¹⁴.

Sangraha Grahani¹⁵: Bowel irritation, liquid, solid, sticky stool passed with sound and mild pain, symptoms appears with the gap of 1 month, 15 days, 10 days or daily, aggravates at day time while relieves at night time, difficult to treat and is chronic.

Thus there is quite a good similarity between the symptoms of Sangraha Grahani and IBS. The basic difference lies in the etiopathogenesis and seat of the disease.

Ghatyantra Grahani¹⁶: Pain in flanks while lying down, gargling sounds similar to the sound of filling a pot with water. This condition is incurable.

Thus it can be concluded that IBS have a wide range of manifestations ranging from upper gastrointestinal reflux symptoms or symptoms referable to the lower gastrointestinal tract. The dosha involvement is mainly pachaka pitta, samana vayu and kledaka kapha. Symptoms of IBS have a strong interlinking with stressful life situation and abnormal psychological profile, so it is not any justification to give similar name that may be synonymous to IBS. But irrespective of the disease entity mentioned above, there is definite derangement of Agni. Thus it can be said that in all patients of IBS, there is a stage of Agni dushti.

Ayurveda approach to IBS

According to Ayurveda, the malfunction of Agni i.e mandagni is the root cause of the disease pertaining to gastrointestinal tract. Irritable Bowel Syndrome is a disease of gastrointestinal tract more of caused due to psychological and somatic factors. Thus, it requires due consideration to treatment of Agni, mental health and mind. It is expected that those herbs which possess Dipaniya

(Appetizer), Pachaniya (Digestant), Grahi (GI protective and absorbents) and Mana prasadak (Mind pacifiers) properties may help in the treatment of IBS.

A. Dipaniya (Appetizer)

Herbs that stimulate digestion or enhance the Agni (digestive fire) are included in it. Charaka has mentioned Dipaniya Mahakashaya -Pippali, Pippalimula, Chavya, Chitraka, Shunthi, Amlavetas, Marich, Ajmoda, Bhallatakasthi, Hinguniryas¹⁷.

B. Pachaniya (Digestant)

Herbs that digest Ama or aids in digestion are included in it. Sushruta has mentioned Pippalyadi gana¹⁸, Dashmula gana¹⁹ as Ama pachaka and Mustadi gana²⁰ act as pachaka. Most of the herbs mentioned in Dipaniya are included in Pachaniya and vice versa. As the herbs possessing Dipaniya property initiates the process of Pachaniya itself. Given below is the list of some commonly used Dipaniya and Pachaniya herbs.

Table 1: List of Dipaniya (Digestive stimulant) and Pachaniya (Digestant) herbs

Herbs	Botanical Name	Family	Useful part	Classical indications
Pippali	<i>Piper longum</i> Linn.	Piperaceae	Fruit, Root	Indigestion, anorexia ²¹
Chavya	<i>Piper retrofractum</i> Vahl.	Piperaceae	Root	Grahani ²²
Chitraka	<i>Plumbago zeylanica</i> Linn.	Plumbaginaceae	Root	Indigestion and Grahani ²³
Shunthi	<i>Zingiber officinale</i> Roscoe.	Zinziberaceae	Rhizome	Anorexia ²⁴ , deficient digestion ^{25,26} , Ama pachaka in Grahani ²⁷
Amlavetas	<i>Hippophae salcifolia</i> D.Don	Elaeagnaceae	Fruit	Indigestion and anorexia in Grahani ²⁸ flatulence ²⁹
Marich	<i>Piper nigrum</i> Linn.	Piperaceae	Fruit	Digestive stimulant ³⁰ , anorexia & Grahani ³¹
Ajmoda	<i>Apium graveolens</i> Linn.	Apiaceae	Fruit	Indigestion and loss of appetite ³² , flatulence ²⁹
Hingu	<i>Ferula narthex</i> Boiss.	Apiaceae	Resin	Anorexia & flatulence ³³ ,
Yavani	<i>Trachyspermum ammi</i> Sprague Linn.	Apiaceae	Fruit	Anorexia ³⁴ , Grahani ³⁵
Dhanyaka	<i>Coriandrum sativum</i> Linn.	Apiaceae	Fruit, whole plant	Indigestion ³⁶ , diarrhea associated with pain ^{37,38}
Beejapura	<i>Citrus medica</i> Linn.	Rutaceae	Fruit	Anorexia ³⁹ , Grahani ⁴⁰
Vacha	<i>Acorus calamus</i>	Araceae	Rhizome	Ama pachaka ^{41,42} ,

	Linn.			Grahani ⁴³ ,
Ativisha	<i>Aconitum heterophyllum</i> Wall.	Ranunculaceae	Rhizome	Ama pachaka in Grahani ²⁷ ,

C. Grahi (GI protective and absorbents)

Herbs which acts as appetizer as well as aids in digestion while absorbing the fluids are included in it. Grahi or Sangrahi is of two types viz., Ama (Ushna) Sangrahi and Pakwa (Sheeta) Sangrahi. The former will digest the Ama and absorbs the fluids and the later will stop the pakwa malas in Atisara (diarrhoea) etc., and stops their excretion. In other words Grahi may be considered as Ushna Sangrahi and

Sthambhana (Anti diarrheal) may be considered as Sheetta Sangrahi. Given below is the list of some Ushna Sangrahi and Sheetta Sangrahi herbs which can be used rationally as per condition and dosha involvement. Herbs like Bilva, Jatiphala, Patha, Sunthi, Jeerak, Gajapippali, etc., are included in Ushna Sangrahi and herbs like Kutaja, Mustaka etc., are included in Sheetta Sangrahi

Table 2: List of Grahi (GI protective and absorbents) herbs

Herbs	Botanical Name	Family	Useful part	Classical indications	Recent researches
Bilva	<i>Aegel marmelos</i> Corr.	Rutaceae	Unripe fruit	Diarrhea with mucous and blood ⁴⁴ ,	Gastro protective effect, anti-diarrheal activity ⁴⁵
Mustaka	<i>Cyperus rotundus</i> Linn.	Cyperaceae	Rhizome	Diarrhea ⁴⁶ Grahani ²⁷	Gastro protective effect ⁴⁷ , anti-diarrheal activity ⁴⁸
Jatiphala	<i>Myristica fragrans</i> Houtt	Myristicaceae	Seed, seed cover	Diarrhea associated with Ama ⁴⁹ .	Anti-diarrheal activity ⁵⁰
Patha	<i>Cissampelos pareira</i> Linn.	Menispermaceae	Root	Diarrhea ⁵¹	Gastro protective effect ⁵² , anti-diarrheal activity ⁵³
Kutaja	<i>Holarrhena antidysenterica</i> (Linn.)Wall.	Apocynaceae	Bark, Seed	Diarrhea ⁵⁴ , Stool with mucus and blood ⁵⁵ .	Anti-diarrheal activity ^{56,57}
Shunthi	<i>Zingiber officinale</i> Roscoe.	Zinziberaceae	Rhizome	Diarrhea ^{58,59} Grahani ⁶⁰	Gastro protective effect ⁶¹ Anti diarrheal activity ⁶²
Jeeraka	<i>Cuminum cyminum</i> Linn.	Apiaceae	Seed	Diarrhea ⁶³ Grahani ⁶⁴	Anti-diarrheal activity ⁶⁶

				Anorexia ⁶⁵	
Gajapippali	<i>Piper retrofractum Vahl.</i>	Piperaceae	Fruit	Diarrhea with blood & mucus ⁶⁷ .	Gastro protective effect ⁶⁸ , Anti diarrheal activity ⁶⁹
Dadima	<i>Punica granatum Linn.</i>	Punicaceae	Fruit, fruit cover	Grahani ⁷⁰ Diarrhea ⁷¹	Gastro protective effect ⁷² , anti-ulcer activity ⁷³ , Anti diarrheal activity of seed ⁷⁴ and peel ⁷⁵
Vrikshamala	<i>Garcinia indica Chois</i>	Guttiferae	Ripe Fruit	Grahani ⁷⁶ Stimulates digestive power ⁷⁷	Anti-ulcer ⁷⁸ and anti-diarrheal activity ⁷⁹ .

D. Mana prasadaka (Mind pacifier)

Herbs that relieve stress and causes happiness of mind are generally included in

it. Given below is the list of herbs which can be used as mind pacifiers.

Table 3: List of Mana prasadak (Mind pacifier) herbs

Herbs	Botanical Name	Family	Part used	Recent researches
Ashwagandha	<i>Withania somnifera Dunal</i>	Solanaceae	Root	Anti-stress, anti-anxiety and anti-oxidant activity ⁸⁰ .
Shankhapushpi	<i>Convolvulus pluricaulis Chois</i>	Convolvulaceae	Whole plant	Anti depressant ⁸¹ and anti-stress activity ⁸² .
Mandukaparni	<i>Centella asiatica (L.) Urban</i>	Umbelliferae	Whole plant	Anti-stress, adaptogenic and anti-anxiety activity ⁸³ .
Brahmi	<i>Bacopa moniera Linn.</i>	Scrophulariaceae	Whole plant	Anti-oxidant and anti-depressant activity ⁸⁴
Jatamansi	<i>Nordostachys jatamansi DC.</i>	Valerianaceae	Rhizome	Anti-stress and adaptogenic activity ⁸⁵ .
Vacha	<i>Acorus calamus L.</i>	Araceae	Rhizome	Anti-oxidant activity ⁸⁶ Anti depressant ⁸⁷
Jyotishmati	<i>Celastrus panniculata Willd</i>	Celatraceae	Seed, seed oil	Anti-oxidant, anti-depressant and anti-anxiety activity ⁸⁸
Vata	<i>Ficus bengalensis L.</i>	Moraceae	Bark	Anti-oxidant and anti-stress activity ⁸⁹

CONCLUSION

Urbanization process has caused poor lifestyle choices, such as smoking, overuse of alcohol, faulty food habits, insufficient physical activity and chronic stress, having a strong impact on digestive system. Irritable Bowel Syndrome has multi factorial causative factors having a strong psychosomatic base with improper lifestyle playing a vital role in the etiopathogenesis and exacerbation of the disease. No single health care system can mitigate this problem entirely and so alternative health care system like Ayurveda can prove to be beneficial. Many Ayurveda herbs mentioned in classics if used rationally can facilitate in management of disease.

REFERENCES

1. Dan. L. Longo., Harrison's principle of internal medicine-18th ed./e, Irritable Bowel Syndrome, vol.2, pg no 2495-97, ISBN 978-0-07-174887-2
2. Ayurvedic Management of Common Disease Condition, Central Council for Research in Ayurvedic Sciences, New Delhi 2013, pg no 47
3. Hungin AP, Whorwell PJ, Tack J, Mearin F. The prevalence, patterns and impact of irritable bowel syndrome: an international survey of 40,000 subjects. *Aliment Pharmacol Ther.* 2003; 17:643-50.
4. Drossman DA, Li Z, Andruzzi E, et al. U.S. householder survey of functional gastrointestinal disorders, prevalence, sociodemography, and health impact. *Dig Dis Sci.* 1993; 38:1569-80.
5. Brenden Skudder, Grahani: An Ayurvedic perspective on Irritable Bowel Syndrome.
6. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit

Samsasthan; Reprint 2011, verse no Charaka Sutra 18/45

7. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Sutra 10/21

8. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/54

9. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/61-64

10. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/66

11. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/68-70

12. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/72

13. Acharya Sharangadhar, Sharangadhar Samhita, Ed. Smt. Shailaja Shrivastav, Chaukhambha Orientalis, Varanasi; Reprint Edition 2009, verse no Poorva Khand 7/8

14. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/73

15. Madhavnidana with Madhukosha Sanskrit and Vidyotini Hindi Commentary by Sudarshana Shastri; Chaukhambha Sanskrit Bhavan, Varanasi, Edition-2004, verse no 4/1-3

16. Madhavnidana with Madhukosha Sanskrit and Vidyotini Hindi Commentary by Sudarshana Shastri; Chaukhamba Sanskrit Bhavan, Varanasi, Edition-2004, verse no 4/4
17. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Sutrasthanana 4/9
18. Sushruta, Sushruta Samhita, with Nibandha sangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Sutrasthanana 38/22-23
19. Sushruta, Sushruta Samhita, with Nibandhasangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Sutrasthanana 38/71
20. Sushruta, Sushruta Samhita, with Nibandhasangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Sutrasthanana 38/55
21. Vrindamadhava or Siddha Yoga, Ed. Dr. (Km.) Premavati Tewari, Chaukhamba Visvabharati, Varanasi; Reprint 2007; verse no 1/206
22. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/113
23. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/96-97
24. Acharya Bhavmishra, Bhavapakasha Samhita, Vidhyotini Bhashya Tika By Bhashaga ratna Pandit Shri Brahma Shankar Mishra, Chaukhamba Krishnadas Academy, Varanasi, (2003); verse no Bhavaprakash Chikitsa 1/851.
25. Acharya Vagbhatta, Astangahridayam, Commentory by Sarvangasundara of Arunadatta & Ayurveda of Hemadri, Ed. Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit sansthan, Varanasi; Reprint 2014, verse no Astangahridayam Uttarasthan 40/55
26. Vrindamadhava or Siddha Yoga, Ed. Dr. (Km.) Premavati Tewari, Chaukhamba Visvabharati, Varanasi; Reprint 2007; verse no 6/9
27. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/98
28. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/111-12
29. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 17/87
30. Acharya Sharangadhar, Sharangadhar Samhita, Ed. Smt. Shailaja Shrivastav, Chaukhamba Orientalis, Varanasi, Reprint Edition 2009, verse no Madhyam Khand 6/53
31. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/108
32. Acharya Vagbhatta, Astangahridayam, Commentory by Sarvangasundara of Arunadatta & Ayurveda of Hemadri, Ed. Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit sansthan, Varanasi; Reprint 2014, verse no Astangahridayam Chikitsa 14/35
33. Agnivesha, Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y

- T Acharya, New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 5/79-84
34. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 8/141-45
35. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/120-21
36. Vrindamadhava or Siddha Yoga, Ed. Dr. (Km.) Premavati Tewari, Chaukhamba Visvabharati, Varanasi; Reprint 2007; verse no 6/21.
37. Vrindamadhava or Siddha Yoga, Ed. Dr. (Km.) Premavati Tewari, Chaukhamba Visvabharati, Varanasi; Reprint 2007; verse no 3/2.
38. Agnivesha, Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya, New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 19/26-29
39. Sushruta, Sushruta Samhita, with Nibandhasangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Uttartantra 39/185
40. Acharya Vagbhatta, Astangahridayam, Commentory by Sarvangasundara of Arunadatta & Ayurveda of Hemadri, Ed. Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit sansthan, Varanasi; Reprint 2014, verse no Astangahridayam Chikitsa 10/30
41. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 19/22
42. Sushruta, Sushruta Samhita, with Nibandhasangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Sutrasthan 38/28
43. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/99
44. Agnivesha, Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 19/49
45. Dhuley JN: Investigation on the gastroprotective and antidiarrheal properties of *Aegle marmelos* unripe fruit extract. Hind Antibiot Bull. 2003; 45-46: 41-46.
46. Sushruta, Sushruta Samhita, with Nibandhasangraha Commentary Of Sri Dalhanacarya Ed. Vd. Yadavaji Trikamji Acharya & Narayana ram Acharya "Kavyatirtha", Chaukhamba Orientalia, Varanasi, 8th Edi, (2005), verse no Sushrut Uttartantra 40/72
47. Guldur ME, Ozgonul A, Kilic IH, Sogut O, Ozaslan M. Gastroprotective effect of *Cyperus rotundus* extract against gastric mucosal injury induced by ischemia and reperfusion in rats. Int J Pharm. 2010; 6:104-10.
48. Uddin SJ, Mondal K, Shilpi JA, Rahman MT. Antidiarrheal activity of *Cyperus rotundus*. Fitoterapia. 2006; 77:134-6.
49. Bhaishajya Ratnavali; Comm. Prof. Siddhinandan Misra; Chaukhamba Surbharati Prakashan Varanasi; Reprint: 2007, verse no Atisara 30
50. Grover JK, Khandkar S, Vats V, Dhunnoo Y, Das D. Pharmacological studies on *Myristica fragrans*--antidiarrheal, hypnotic,

analgesic and hemodynamic (blood pressure) parameters. Methods Find Exp Clin Pharmacol 2002; 24:675-80.

51. Acharya Bhavamishra, Bhavprakasha Nighantu, Comm. Dr. K.C. Chunekar; Ed. Dr. Gangasahaya Pandeya; Pub. Chaukhamba Bharati Academy; Varanasi, Reprint: 2006; verse no Bhavprakasha Nighantu. Guduchyadiavarga /191-192, pg 381.

52. G. Amresh, Hussain Zeashan, Ram Ji Gupta, Ravi Kant, Chandana Venkateswara Rao, Paras Nath Singh. Gastroprotective effects of ethanolic extract from *Cissampelos pareira* in experimental animals. Journal of natural medicines, 2007; 61(3): 323-28.

53. G Amresh, GD Reddy, CV Rao. Ethnomedical value of *Cissampelos pareira* extract in experimentally induced diarrhea. Acta Pharma. 2004; 54(1):27-35.

54. Vridha Vagbhatta, Ashtanga Sangraha, Edi. by. Vyakhyakar Smt.Shailaja Shrivastava, Chaukhamba Orientalia, Varanasi, 1st edition, 2006, verse no Ashtanga Sangraha Chikitsa 11/17

55. Agnivesha, Charaka samhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 6/13

56. Daswani PG, Birdi TJ, Antarkar DS, Antia NH: Investigation of the antidiarrheal activity of *Holarrhena antidysenterica*. Indian J Pharm Sci. 2002, 64: 164-67.

57. Sharma DK, Gupta VK, Kumar S, Joshi V, Mandal RSK, Prakash AGB, Singh M (2015) Evaluation of antidiarrheal activity of ethanolic extract of *Holarrhena antidysenterica* seeds in rats, Veterinary World, 2015, 8(12): 1392-95.

58. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 19/22

59. Acharya Vagbhatta, Astangahridayam, Commentary by Sarvangasundara of Arunadatta & Ayurveda of Hemadri, Ed. Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit sansthan, Varanasi; Reprint 2014, verse no Astangahridayam Chikitsa 9/17

60. Agnivesha, Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/129-131

61. Raghavendra Haniadka, Elroy Saldanha, Venkatesh Sunita, Princy L. Palatty, Raja Fayad and Manjeshwar Shrinath Baliga; A review of the gastroprotective effects of ginger (*Zingiber officinale* Roscoe). Food and Funct., 2013; 4(6): 845-55

62. Poonam G. Daswani, S. Brijesh, Pundarikakshudu Tetali, Noshir H. Antia, and Tannaz J. Birdi; Antidiarrheal activity of *Zingiber officinale* (Rosc.). Current Science, 2010; 98(2): 222-229.

63. Acharya Bhavamishra, Bhavprakasha Nighantu, Comm. Dr. K.C. Chunekar; Ed. Dr. Gangasahaya Pandeya; Pub. Chaukhamba Bharati Academy; Varanasi, Reprint: 2006; verse no Bhavprakasha Nighantu. Haritakyadi varga/84-85, pg 30-31.

64. Acharya P.V. Sharma, Dhanwantari Nighantu, Comm. Dr. Guruprasad Sharma; Pub. Chaukhamba Orientalia Varanasi; Reprint: 2008.

65. Agnivesha, Charaka samhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 26/212

66. Sahoo HB, Sahoo SK, Sarangi SP, Sagar R, Kori ML. Anti-diarrheal investigation from aqueous extract of *Cuminum cyminum* Linn. Seed in Albino rats. Pharmacognosy Res. 2014; 6(3):204-09.

67. Vridha Vagbhatta, Ashtanga Sangraha, Edi. by. Vyakhyakar Smt. Shailaja Shrivastava, Chaukhamba Orientalia, Varanasi, 1st edition, 2006, verse no Ashtanga Sangraha Chikitsa 11/4
68. Toshio Morikawa, Hisashi Matsuda, Itadaki Yamaguchi, Masayuki Yoshikawa. New Amides and gastroprotective constituents from the fruit of Piper chaba. *Planta Medica*, 2004; 70(2):152-59.
69. Bajad S, Bedi KL, Singla AK, Johri RK, Antidiarrheal activity of piperine in mice. *Planta Med.* 2001; 67(3):284-87
70. Agnivesha: Charakasamhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 15/111-12
71. Acharya Vagbhatta, Astangahridayam, Commentory by Sarvangasundara of Arunadatta & Ayurveda of Hemadri, Ed. Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit sansthan, Varanasi; Reprint 2014, verse no Astangahridayam Chikitsa 9/112-13
72. K. B. Ajaikumar, M. Asheef, B. H. Babu, and J. Padikkala, "The inhibition of gastric mucosal injury by Punica granatum L. (pomegranate) methanolic extract," *Journal of Ethnopharmacology*, 2005; 96(1-2):171-76.
73. R. Gautam and S. C. Sharma, "Anti-ulcer activity of Punica granatum L. in diabetic rats," *International Journal of Pharmacy and Pharmaceutical Sciences*, 2012; 4(3):451-61.
74. Das AK. Et al. Studies on anti-diarrheal activity of Punica granatum seed extract in rat. *J-Ethnopharmacol*, 1999; 68(1-3): 205-08.
75. E.Y. Qnais, A.S. Alokda, Y.Y. Abu Ghalyun & F.A. Abdulla, Antidiarrheal Activity of the Aqueous Extract of Punica granatum. (Pomegranate) Peels. *Pharmaceutical biology*, 2007; 45(9).
76. Acharya Bhavamishra, Bhavprakasha Nighantu, Comm. Dr. K.C. Chunekar; Ed. Dr. Gangasahaya Pandeya; Pub. Chaukhamba Bharati Academy; Varanasi, Reprint: 2006; verse no Bhavprakasha Nighantu. Amradi varga/149, pg 588.
77. Agnivesha: Charaka samhita, Ayurveda Dipika Commentary by Chakrapani, Ed. Pt. Y T Acharya: New Delhi, Rastriya Sanskrit Samsasthan; Reprint 2011, verse no Charaka Chikitsa 11/85-90
78. Yamaguchi F, Saito M, Toshiaki A, Yoshimura Y, Nakazawa H. Free radical scavenging activity and antiulcer activity of garcinol from *Garcinia indica* fruit rind, *J of Agric. and Fd. Chem.* 2000; 48:2320-25.
79. Kiran G. Ghanekar, Vaishali J. Dixit, Antidiarrheal evaluation of aqueous extract of *Garcinia indica* & *Cuminum cyminum* and a polyherbal formulation. *International Journal of Pharmacy and Pharmaceutical Sciences*, 2014; 6(6):329-31.
80. Kathleen A. Head, ND, and Gregory S. Kelly, ND; Nutrients and Botanicals for treatment of Stress: Adrenal Fatigue, Neurotransmitter Imbalance, Anxiety and Restless sleep. *Alternative Medicine Review*, 2009; 14(2).
81. Dhingra D, Valecha R. Screening for Antidepressant-like activity of *Convolvulus pluricaulis Choisy* in mice. *Pharmacol Online* 2007; 1: 262-78.
82. Prasad GC, Gupta RC, Srivastava DN, Tandon AK, Wahi RS, Udupa KN. Effect of Shankhpushpi on experimental stress. *J Res Indian Med* 1974; 9:19-27.
83. Gupta YK, Veerendrakumar MH, Srivastava AK, Effect of *Centella asiatica* on pentylentetrazole-induced kindling, cognition and oxidative stress in rats. *Pharmacol Biochem Behavior* 2003; 74:579-85.
84. Shen YH, Zhou Y, Zhang C, Liu RH, Su J, Liu XH and Zhang WD, Antidepressant effects of methanol extract and fractions of *Bacopa monnieri*. *Pharmaceutical Biology* 2009; 47 (4):340-43.
85. Lyle N, Chakrabarti S, Sur T, Gomes A, Bhattacharyya D. *Nardostachys jatamansi* protects against cold restraint stress induced central monoaminergic and oxidative changes in rats. *Neurochem Res* 2012; 37:2748-57.

86. S. Manikandan, R. Srikumar, N. J. Parthasarathy, R. S. Devi. Protective effect of *Acorus calamus* on free radical scavengers and lipid peroxidation in discrete regions of brain against noise stress exposed rat, Biol Pharm Bull 2005; 28: 2327-30.

87. Anindita De and Monika Singh, *Acorus calamus* Linn. rhizomes extract for antidepressant activity in mice model. Advance Research in Pharmaceuticals and Biologicals. 2013; 3 (IV): 520-25.

88. Bhanumathy M, Harish MS, Shivaprasad HN, Sushma G, Nootropic activity of *Celastrus paniculatus* seed. Pharm Biol. 2010; 48(3) : 324-27

89. Taur DJ NS, Patil RY, Kharya MD, Anti stress and ant allergic effects of *Ficus*

bengalensis bark in asthma, Nat Prod Res, 2007; 21(14), 1266-70

CORRESPONDING AUTHOR

Dr Rashmi Patekar,
Ph.D Scholar, P.G. Dept. of Dravyaguna
Vigyan, National Institute of Ayurveda,
Jaipur, Rajasthan-India.
E-mail: rashpatekar@gmail.com

Source of support: Nil,

Conflict of interest: None Declared

Cite this article as

Rashmi Patekar: Application of Ayurveda
Herbs in the Management of Irritable Bowel
Syndrome
ayurpub 2017;II(2):394-405