# REVIEW OF AYURVEDIC HERBAL DRUGS FOR MANAGEMENT OF GRAHANI ROGA ALONG WITH THEIR EXPERIMENTAL STUDIES

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## ABSTRACT

The term "*Grahani*" in Ayurveda originates from the Sanskrit word "*graha*," which conveys the ideas of "catching," "holding," or "getting." In Ayurveda, *Grahani* is closely associated with Agni, the digestive fire responsible for food metabolism and digestion. Ayurvedic texts elaborate on the processes of ingesting, digesting, absorbing, and assimilating *Aahaar* (food) through the *Grahani*. Normally, the *Grahani* retains undigested food while releasing digested material through its lumen. Any disruption in *Agni* can result in improper food digestion.

In today's modern era, people often have irregular eating habits and dietary schedules, alongside enduring constant mental stress due to various factors. These factors collectively contribute to disruptions in the functioning of the gastrointestinal system. According to Ayurveda, *Mandagni*, or weakened digestive fire, is considered a fundamental factor leading to the development of many diseases. *Grahani Roga*, a prominent gastrointestinal disorder frequently encountered in clinical practice, is one of the outcomes of this.

*Grahani*, which refers to the organ duodenum in Ayurveda, and *Agni*, the digestive fire, have a mutually dependent relationship. When *Mandagni*, or a sluggish digestive fire, occurs, it can result in the accumulation of *Ama Dosha*, eventually leading to the manifestation of *Grahani Roga*. The signs and symptoms of *Grahani Roga* closely resemble those of Irritable Bowel Syndrome (IBS) as described in modern medicine. Globally, the estimated prevalence of IBS is approximately 11.2%, with a range of 4.2% to 7.7% in India. Notably, IBS is three times more common among women and individuals of working age. This article briefly describes the Grahani Roga alongwith various herbal drugs mentioned in different ayurvedic texts used in its the treatment.

**KEYWORD-** *Grahani, Agni, Aahar*, Herbal drugs.

## INTRODUCTION

Food, or "*Ahara*," is paramount for sustaining life and is described as the primary pillar among the three pillars of life in Ayurveda (*Trayopsthambha*), which include *Ahara* (food), *Nidra* (sleep), and *Brahmacharya* (celibacy or self-control).[1] Wholesome food, referred to as Pathya *Ahara* in Ayurveda, plays a crucial role in maintaining good health, longevity, strength, intellect, a pleasant voice, and a healthy complexion. The digestive fire, *Agni*, is a constant factor in the process of Ahara paka, which is the digestion and transformation of food.

*Grahani*,[2] a term in Ayurveda, is related to the place of *Agni*, the digestive fire, which aids in the metabolism and digestion of food. In Ayurveda, *Mandagni*, or a weakened digestive fire, is considered the root cause of many diseases, with *Grahani roga* being a prominent gastrointestinal disorder frequently encountered in daily practice. *Mandagni* can lead to the accumulation of *Ama Dosha* over time, potentially resulting in *Grahani* Roga. According to Acharya Charaka, when partially digested and partially undigested substances move downward in the gastrointestinal tract, it can lead to *Grahani* roga due to *Durbala* (weak) *Agni*.[3]

*Grahani* and *Agni* are interdependent, where functionally weak *Agni*, or *Durbala Agni*, causes improper digestion of ingested food, leading to the formation of *Ama Dosha*. *Ama Dosha* is considered the root cause of many diseases and holds pivotal importance in the pathogenesis of *Grahani Roga*. *Grahani* is classified among the eight major diseases (*Ashtamahagada*) by Acharya Vagbhatta in Ayurveda.[4]

While modern science does not have an exact counterpart to *Grahani roga*, its symptoms are commonly found in various disease conditions. The concept of *Grahani roga* is further briefly described under different headings.

## *GRAHANI ROGA HETUS* (ETIOLOGICAL FACTORS) [5]

One who voraciously consumes food without regard for dietary guidelines is prone to developing disorders related to the *Grahani* in a short span of time. The primary contributor to this ailment is the derangement of *Agni* (digestive fire). The main factors causing *Grahani Roga* are:

1. Direct disruption of *Agni* due to engagement in various causative factors.
2. Persisting with an inadequate digestive fire (*Mandagni*), especially after recovering from diarrhea, and continuing to consume inappropriate foods (*Ahit Bhojana*)

   The factors responsible for *Agni Dushti* can be categorized into two groups: *Samanya* (general) and *Vishishta* (specific) *Hetus*.

**Samanya Hetus**

1- Aaharaj Nidan

Table 1: Aaharaj Nidan.

| | |
|---|---|
| Abhojana | Samashana |
| Vishamashana | Viruddhashana |
| Atibhojana | Asatmya Bhojana |
| Atiguru Bhojana | Sheeta Bhojana |
| Atiruksha Bhojana | Sandushta Bhojana |

2- Vyapada of Panchkarma

- Virechana
- Vamana
- Snehana

3- Emaciation or wasting brought about by other diseases

4- Viruddha or Incompatibility of-

- Desha
- Kala
- Ritu

5- Suppression of natural urges (*Vega Vidharana*)

Acharya Sushruta also described causes of *Ajeernaas*[6]

- Atyambupana
- Vishamashana

- Swapna Viparyaya (Divaswapa and Ratri Jagarana)
- Manasika Hetus viz. Irsha, Bhaya, Krodha, Lubdhata, Shoka, Dainya, etc.

**Vishishta Hetus**

| S.No. | Vataj Grahani | Pittaj Grahani | Kaphaj Grahani |
|---|---|---|---|
| 1. | Katu,Tikta,Kashaya rasa | Katu,Amla rasa yukta aahar | Guru,Atisnigdha,Sheeta bhojan |
| 2. | Atiruksha,dushit bhojan | Ajeerna | Atibhojan |
| 3. | Pramitashan | Vidhai anna | Bhukta matra swapna |
| 4. | Anshan | Kshara ( Alkaline food) | |
| 5. | Veganigraha | | |
| 6. | Atimaithun | | |

- In the context of managing diarrhea, Sushruta discussed *Grahani Roga* in the *Atisara Pratisedh* chapter. He explained that individuals with weak digestive fire (*Mandagni*) or those who have recently recovered from diarrhea (*Atisar*) may develop *Grahani Roga* if they consume food indiscriminately.
- Acharya Charaka, when discussing the treatment of *Amatisara* (diarrhea caused by undigested food), noted that the use of constipating (*Sangrahi*) medications during the phase of undigested food (*Ama Avastha*) in *Atisara* could potentially lead to the development of *Grahani Roga*.
- Conditions such as hemorrhoids (*Arsha*) and diarrhea (*Atisara*) may directly contribute to the occurrence of *Grahani Roga* because they are mutually influential factors (*Anyonya Nidana Bhuta Vikara*). In cases of *Pittaja Jwara* (fever characterized by increased *Pitta*), where diarrhea (*Atisara*) is a predominant feature, it can be a factor in the development of *Grahani Roga*.

**PURVARUPA**[7]

| S.No. | Purva rupa | Charak | Sushruta | Vagbhata |
|---|---|---|---|---|
| **1.** | **Trishna (Thirst)** | + | + | + |
| **2.** | **Alasyam** | + | + | _ |
| **3.** | **Balakshaya (loss of strength)** | + | + | _ |
| **4.** | **Annasyavidaha** | + | + | _ |
| **5.** | **Chirapaka (delayed digestion)** | + | _ | + |
| **6.** | **Kayasya gourvam (heaviness of the body)** | + | _ | + |
| **7.** | **Sadana (lassitude)** | _ | + | _ |
| **8.** | **Klama (Exhaustion)** | _ | + | + |
| **9.** | **Aruchi (Aversion of food)** | _ | + | + |
| **10.** | **Kasa (cough)** | _ | + | _ |
| **11.** | **Karnakshweda (Ringing in ear)** | _ | + | + |

| | | | | |
|---|---|---|---|---|
| **12.** | **Antrakujanam (Rumbling sound in the intestine)** | – | + | + |
| **13.** | **Preseka (salivation)** | – | – | + |
| **14.** | **Vaktravairasaya** | – | – | + |
| **15.** | **Bhrama** | – | – | + |
| **16.** | **Anaddhodarata** | – | – | + |
| **17.** | **Chardi** | – | – | + |
| **18.** | **Amlapakam** | – | – | + |

**RUPA**[8]

| S.No. | Types of Grahani | Specific Characters | Generalised Symptoms |
|---|---|---|---|
| **1.** | **Vataj Grahani** | Flatulence after and during digestion. | ❖ Roughness in body, dryness of throat and mouth, hunger, thirst, blurred vision, tinnitus, Pain in chest, thigh, pelvic, neck region, emaciation, weakness, Parikartika, cough, dyspnoea.<br>❖ **Abdominal symptoms**- Food digest with difficulty, Suktapaka, visuchika.<br>❖ **Character of Stool**-Passes stool with difficulty, liquid mixed with hard stool, froathy, undigested repeatedly. |
| **2.** | **Pittaja Grahani** | Foetid and sour eructation | ❖ Roughness in body, dryness of throat, mouth.<br>❖ Hunger, thirst, blurred vision, tinnitus, pain in chest, thigh, pelvic, neck region, weakness, Parikartika, cough, dyspnoea<br>❖ **Character of stool**- Watery, undigested, yellowish stool**.** |
| **3.** | **Kaphaj Grahani** | Heaviness and stiffness of abdomen | ❖ Nausea, vomiting, anorexia, sweetness of mouth, cough, rhinitis, eructation having foul smell, lack of desire towards women, weakness and lassitude.<br>❖ **Character of stool**- Stool not well formed but broken into pieces, mixed with Ama and mucous and heavy. |
| **4.** | **Sannipataj Grahani** | Mixed lakshan of vataj, Pittaj, Kafaj grahani. | ❖ Mixed lakshan of vataj, Pittaj, Kafaj grahani. |
| **5.** | **Sangrahani** | Disease aggravates during day time and pacifies in night time, disease repeats once in 15 days, 30 days, 10 days or once in a day. | ❖ Lassitude, debility, general malaise, low backache**.**<br>❖ **Abdominal symptoms-** Intestinal gurgling. |

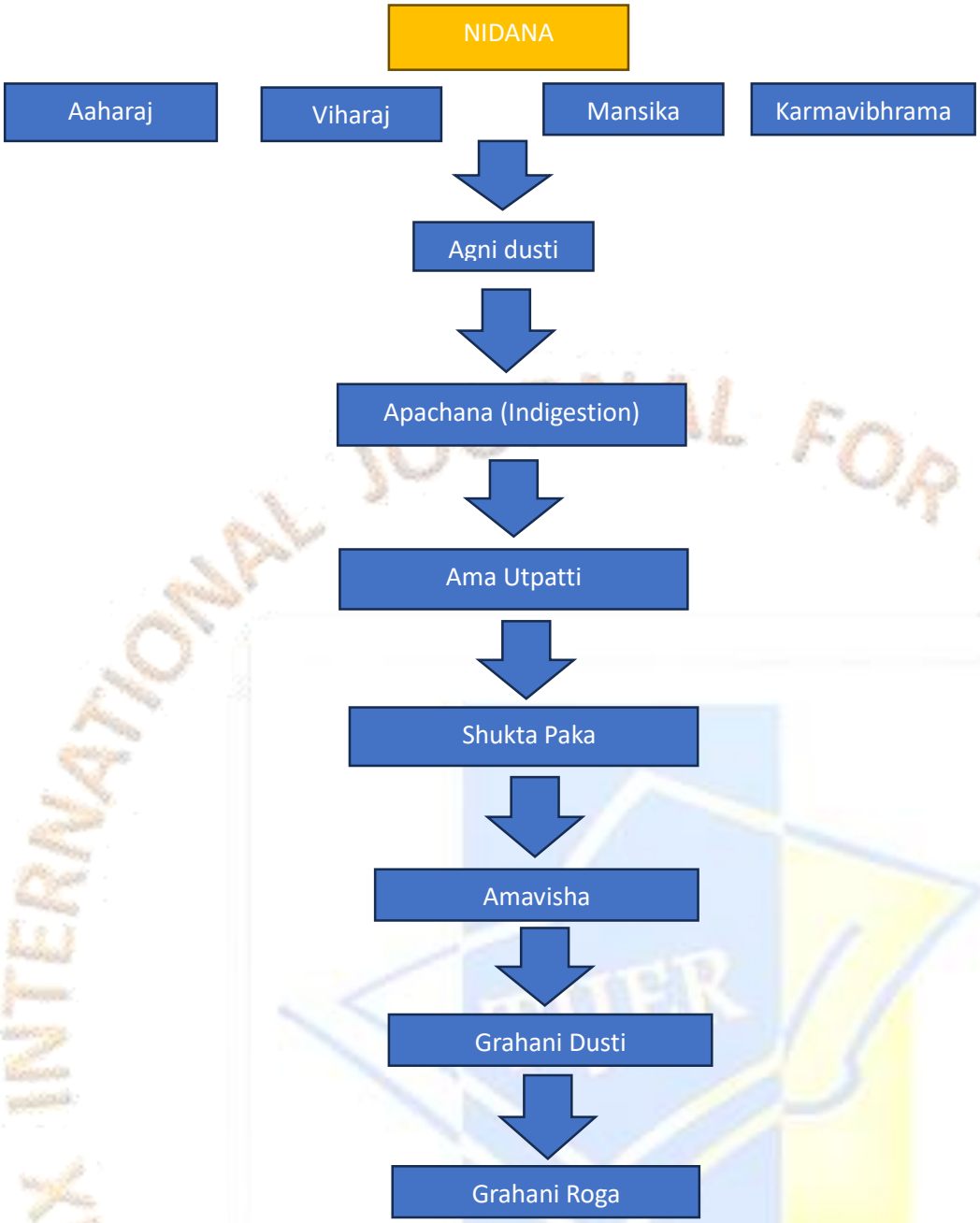
| | | | |
|---|---|---|---|
| | | | ❖ **Character of stool**-Watery, cold, solid, sliminess, unctuous with Ama, froathy and passed with sound. |
| **6.** | **Ghatiyantra Grahani** | Produces sound while passing stool like pouring water out of a pot - Swaptah Parshwayo Shulam - Galajalla Gati Dhwani | ❖ Excessive sleep, pain in side of chest**.**<br>❖ **Character of Stool** - Produces sound while passing stool like pouring water out of a pot. |
| **7.** | **Raj Grahani** | Patient suffering from this disease do not digest fat, cereals, sugars. They often digest milk and fruits.<br>They pass Snigdha Sfita and Bhuri Shukla stool in morning occasionally in noon.<br>On examination tongue appears to be smooth, uncleared and of Pandu Varna. | ❖ It is seen in people living sedentary life style. |
| **8.** | **Kshataj Grahani** | After Pravahika formation of various ulcers in the intestine lead to emergence of signs and symptoms stimulating Grahani Roga. This type of Grahani is known as Kashtaj Grahani. In this sign and symptoms subside for some time and reappears.<br>Occasionally there is blood in stool. | ❖ It is due to injuy to Grahani, after relieving from Atisar and pravahika . |
| **9.** | **Nirmuhk Grahani** | In this type of Grahani the patient passes stool with mucous & blood with tenesmus.<br>There is alternate constipation and diarrhoea. | ❖ Pain present during defaecation and stool mixed with intestinal mucous membrane is passed. |

**SAMPRAPTI**

The fundamental pathology underlying *Grahani Roga* revolves around the disturbance of *Agni*, or digestive fire. This disruption in *Agni* can manifest as three types: *Mandagni* (weakened digestive fire), *Tikshnagni* (hyperactive digestive fire), and *Vishmagni* (irregular digestive fire). However, it is primarily *Mandagni* that plays a crucial role in the development of *Grahani Roga.*

Regarding the progression of *Grahani*, Charaka has explained that *Agni* becomes impaired due to various causative factors (*Nidana*) and loses its ability to effectively digest even easily digestible foods. Consequently, this undigested food undergoes a fermentation process, giving rise to the formation of toxic substances and contributing to the onset of pathological conditions associated with *Grahani Roga*.

**SAMPRAPTI OF GRAHANI ROGA (SCHEMATIC PRESENTATION)**




**Samprapti Ghataka of Grahani Roga:**

| | |
|---|---|
| Nidana | Aharaja, Viharaja, Manasika, Karana |
| Dosha | Vayu: Samana, Apana,Vyana; Pitta-Pachaka; Kapha –Kledaka |
| Dushya | Ahara Rasa, Rasa Dhatu |
| Agni | Jatharagnimandya |
| Ama | Jatharajanya |
| Srotas | Annavaha Srotas, Purishavaha Srotas, Rasavaha Srotas |
| Strotodusti | Sanga, Vimarga-Gamana, Atipravritti |
| Udbhavasthana | Ama-Pakvashaya |
| Roga Marga | Abhyantara |
| Vyadhiswabhava | Chirakari |

| | |
|---|---|
| Adhisthana | Grahani |

**TREATMENT:**

The initi al approach involves the purification of *Doshas*, wherein vitiated *Doshas* are expelled from the body. Ayurvedic texts favor this method because it not only treats the disease but also minimizes the likelihood of recurrence. To address this condition, various *Deepana-Pachana* (digestive and carminative) medicines are recommended in the ancient texts. This is followed by a light diet regimen before transitioning the patient to a regular diet.

Classical Herbs mentioned in Different Ayurvedic texts for *Grahani roga* along with their mode of action and experiments done[9-25] –

| S.No. | Herbs with Sanskrit &Latin name | Part used or chemical Composition | Used Experimental models and Effects seen / Probable mode of action |
|---|---|---|---|
| **1.** | *Haritaki* (*Terminalia chebula* Retz and Willd.) | Fruit extract | Inhibitory effect on the harmful and pathological bacteria in the gut like *C. perfringens* and *E. coli*, weak or no inhibitory effects against *B. bifidum, L. acidophilus*, and *L. casei*, moderate inhibition of the growth of *B. longum*. |
| **2.** | *Vrikshamla* (*Garcinia indica* Linn.) | Fruit and Root bark | Helps body in rebuilding the stomach lining and in reducing acidity. |
| **3.** | *Bhallataka* (*Semicarpus anacardium* Linn. f.) | Bark | Bark extract used in Hemorrhoids and severe diarrhea. |
| **4.** | *Palash* (*Butea monosperma* Lam.Taub.) | Bark | The plant contains Kino-tannic acid, Gallic acid, pyrocatechin, palasitrin, and major glycosides as butrin, butolic acid, cyanidin, histidine, lupenone, lupeol, (-) -medicarpin,miroestrol, palasimide, and shellolic acid effective in protecting gastrointestinal tract. |
| **5.** | *Shatavari* (*Asparagus racemosus* Willd) | Root extract | Evaluated for its antidiarrheal activity in castor oil-induced diarrhoeal rats.<br>The ethanolic and aqueous extracts have been shown to possess inhibitory activity against gastrointestinal tract motility after charcoal meal administration. |

| | | | |
|---|---|---|---|
| **6.** | *Hapusha*<br>(*Juniperus communis* Linn.) | Leaf Extract | Significantly decreased volume and total acidity, but did not alter pH and peptic activity. |
| **7.** | *Chitraka*<br>(*Plumbago zeylanica* Linn.) | Root Extract | Manage indigestion by digesting the Ama due to it's Deepan (appetizer) and Pachan (digestion) properties. It even helps to balance the Pitta dosha. |
| **8.** | *Maansrohini*<br>(*Soymida febrifuqa A.*) | Bark | Used to treat Diarrohea, Dysentry and as a Febrifuge. |
| **9.** | *Jeerak*<br>(*Cuminum cyminum* Linn.) | Aqueous extracts of leaves and dried fruits of cumin | Enhance gastric mucin protection and regeneration.<br>The effect of aqueous extract of *Cuminum cyminum* seeds (ACCS) was studied against diarrhoea on albino rats. The anti-diarrhoeal effect was investigated by castor oil induce diarrhoea model, prostaglandin E2 (PGE2) induced enteropooling model and intestinal transit by charcoal meal test. The ACCS showed significant ($p< 0.001$) inhibition in frequency of diarrhoea, defecation time delaying, secretion of intestinal fluid as well as intestinal propulsion as compared to control. |
| **10.** | *Bilva*<br>(*Aegle marmelos* L. Corr.) | Chloroform extract of the root of *A. marmelos*<br>Methanol extract of the fruits of *A. marmelos*<br>Unripe fruit pulp of *A. marmelos* | In vitro study was found that the extract was active against the strains of *Vibrio cholerae*, followed by *Escherichia coli (E. coli)* and *Shigella* sp.<br>Decreased the intestinal propulsion in rats.<br>Affected the bacterial colonization to gut epithelium and production and action of certain enterotoxins. |
| **11.** | *Amlika*<br>(*Tamarindus indica* L.) | Seed | Polysaccharides could modify the gut microbiota composition, inhibit the enteropathogenic bacteria, thus producing a prebiotic effect on the gut health. |
| **12.** | *Musta*<br>(*Cyperus rotundus* L.) | Methanol extract of *C. rotundus* rhizome | Musta's antidiarrheal effect is probably due to the action on some feature of bacterial virulence such as colonization, production of |

| | | | |
|---|---|---|---|
| | | | cholera toxin or labile toxin rather than killing the bacteria.<br><br>Significantly suppress the frequency of the diarrheal episodes as well as prolong the latent period for the onset of diarrhea when compared with standard drug loperamide. |
| **13.** | *Changeri*<br><br>(*Oxalis corniculata* L.) | Methanolic extract of whole plant | Very strong gastro protective effect, decrease in the number of ulcers, ulcer score and ulcer index in indomethacin treated and pylorus ligated rats. |
| **14.** | *Taalmuli*<br><br>(*Curculigo orchioides* Gaertn) | Methanol extract | Significantly prolonged the onset time of diarrhoea, reduced the volume and weight of intestinal contents in mice, and significantly decreased gastro-intestinal motility. Further in silico molecular docking analysis showed that isocurculigine was identified as the most effective anti-diarrheal compound. |
| **15.** | *Lavang*<br><br>(*Syzygium aromaticum* Linn. Merr M.Perry.) | Alcoholic and aqueous clove buds extracts | Have gastroprotective efficacy.<br><br>In traditional medicine, clove has been used in flatulence, indigestion complaints and diarrhea. |

## DISCUSSION

*Mandagni*, or impaired digestive fire, is considered the fundamental cause of various diseases. Specifically, *Agni dushti*, or disturbance of the digestive fire, is the primary factor leading to *Grahani roga*, a specific condition related to the small intestine. In this context, *Grahani* represents the primary site of *Agni* and the onset of the *Grahani roga* disease.

This interaction between *Grahani* and *Agni* is known as *Ashraya-ashrita bhava*. It results in various symptoms such as *atishruta* (excessive or frequent bowel movements), *vibaddha mala pravritt* (abnormal stools), *jwara udgara* (fever), and more.

The causative factors (*Nidana*) that disrupt *Agni* include:

1. *Aharaja nidana* - *Abhojana* (excessive fasting), *Atibhojana* (overeating), *Vishama bhojana* (improper dietary choices), and *Asatmya bhojana* (unwholesome food).
2. *Panchkarma vyapada* - Adverse effects of therapeutic procedures.
3. *Vega vidharana* - The suppression of natural urges.

These factors contribute to *Agni dushti* and subsequently increase the risk of *Grahani roga* and related symptoms.

## CONCLUSION

*Grahani roga*, a condition associated with impaired digestion and absorption of food, is often exacerbated by our unhealthy dietary practices. In the context of Ayurveda, special emphasis is placed on addressing this issue by considering the concept of "*agni*" which represents the digestive fire within the body. Treatment for *Grahani roga* typically involves the administration of *Deepana* and *Pachana* drugs to improve the digestive process and restore the proper functioning of *agni*. Further more experimental and clinical studies on the above mentioned classical drugs should be conducted regarding their potential in relieving the symptoms of *Grahani roga* so that better management can be done. The tabulation of the drugs mentioned in different Ayurvedic texts along with the information regarding their experimental studies can be further used as a knowledge base and reference for research purpose to find out their potency regarding management for evaluated safe and effective therapy of *Grahani roga* in the coming future.

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