



MOST COMMON NATURAL PRODUCTS USED TO RELIEVE CONSTIPATION IN BANGLADESH: A PRECISE OVERVIEW

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Abstract: A number of bowel symptoms, including hard stool, difficulty of passing stool, and a sense of incomplete evacuation, are signs of constipation. Research on constipation in underdeveloped nations, particularly in South Asian nations, is quite limited. The natural elements employed to cure constipation in Bangladesh (BD) have not been thoroughly studied. In an effort to give readers a better understanding about usage of these natural components, this article reviews a number of natural medicines that have been shown to be successful in both preventing and treating constipation. The purpose of this article is to outline most common natural products usage to relieve constipation among Bangladeshi population.

Keywords: Bangladesh, Bowel movements, Constipation, Defecation, Natural products.

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INTRODUCTION

Throughout the world, constipation is among the most prevalent acute or chronic gastrointestinal conditions. Most often, it is seen in 12% of children and nearly 16% of adults. The symptoms of constipation include painful and stiffness, infrequent stools, difficulty passing stool, or unsatisfactory defecation (Masoomi *et al.*, 2016). Constipation is characterized by a difficult or delayed bowel movement that can persist for few weeks and frequently results in concern and suffering for the patient (Baker *et al.*, 1999; Verma, 2017). According to reports, 34.7% of children suffer from constipation (Farnam *et al.*,

2009; Khanna *et al.*, 2010). Anticholinergics, analgesics, iron supplements, antihypertensives, diuretics, antidepressants, and antipsychotics are a few of the drugs that are frequently linked to constipation. Constipation can also be caused by neurological, myopathic, or structural problems (Andrews and Storr, 2011).

Constipation's cellular and molecular causes have not yet been thoroughly explained. Constipation sufferers do, however, exhibit a number of anomalies in the intestinal neurochemistry and enteric nervous system. There is less of a contractile response to



substances like substance P and vasoactive intestinal peptides, for example. Eventually, these will cause intestinal motility to decline (Bassotti *et al.*, 2013). In humans, defecation is the result of intricate sensory-motor coordination that ultimately affects the intact gastrointestinal tract. Depending on a variety of characteristics, such as age, gender, food and hydration intake, psycho-behavioral factors, posture, mobility, and many more, the typical pace of defecation can range from three times per day to three times per week (Palit *et al.*, 2012). People have been taking on herbal and natural medicines to prevent and treat illnesses in recent years.

It is very important and valuable to research and review how these solutions work to prevent and treat constipation. Senna, cascara, psyllium, flaxseed, prune, rhubarb, fig, aloe vera, and numerous more natural medicines are well-known for relieving constipation (Ramos *et al.*, 2015; Iizuka and Hamamoto, 2015). Ethno-medicine is used in Indo-Nepal border to treat several diseases like constipation (Prakash and Verma, 2021). The presence of specific components, such fiber, mucilage, in these natural therapies can help soften the stool. Due to its effects on the water content and weight of the stool, GI transit time, short-chain fatty acid synthesis, and numerous other hypothesized pathways; fiber may be helpful in the treatment of constipation, especially for chronic constipation (Lever *et al.*, 2019; Wang and Yin, 2015; Shayganni *et al.*, 2016; Rahimi-Madiseh *et al.*, 2017; Mohsenzadeh *et al.*, 2018).

Due to the high fiber content of their diets, South Asian nations like Bangladesh and India are thought to have relatively low rates of constipation. Research on constipation in underdeveloped nations, particularly in South Asian nations, is quite limited (Poddar, 2016). The natural elements employed in Bangladesh (BD) have not been thoroughly studied. However, plant medicine usage for constipation is very common (Khanna *et al.*, 2010; Rajindrajith and Devanarayana, 2011).

There are few survey research conducted in Bangladesh about this topic but specific and appropriate review is still awaited. The purpose of this review is to outline most common natural products usage among Bangladeshi population particularly to relieve constipation (Table 1).

Until to November 2024, article searches were conducted using electronic databases such as PubMed, Scopus, and Google Scholar. A combination of medical headings (MeSH), such as constipation, laxative, purgative, herbs, and Asian, were used in the search strategy.

POSSIBLE REASONS FOR CONSTIPATION

Constipation is frequently caused by a diet deficient in fiber. As fiber absorbs water and makes stool thicker, softer, and easier to pass, a diet low in fruits, vegetables, and other foods with less fiber can result in dry, hardened stool that may be challenging to pass. In this case, constipation is not a serious issue and may be managed with healthy eating practices (Tan *et al.*, 2020). A diet high in fiber has been shown to reduce colon transit time by increasing stool weight, whereas a diet low in fiber causes constipation. Increased fiber intake, however, may exacerbate symptoms due to the gas generated during the fiber's metabolism (Forootan *et al.*, 2018). Constipation can also be brought on by a number of illnesses, including diabetes, hypothyroidism, chronic renal disease, stroke, spinal cord injury, Parkinson's disease, myopathic disorders, endocrine and metabolic abnormalities, connective tissue disorders, etc (Forootan *et al.*, 2018).

The antipyretic, anti-acid, antidepressant, anticholinergic, anticonvulsive, and iron and calcium-containing dietary supplements are among the medications that might cause constipation. Diuretics, blood pressure-lowering medications, antihistaminics, muscle relaxants, and other medications have also been shown to impair gastrointestinal motility, which can lead to irregular stool passage (Forootan *et al.*, 2018). Using painkillers can cause or exacerbate constipation. Constipation affects 40% of those using opioids for chronic non-cancer pain and 90% of cancer patients using opioids for pain (Harvard health, 2024). Constipation may also result from a lack of exercise because it is thought that exercise makes it easier for feces to pass from the colon (Jani and Marsicano, 2018). Other reasons of constipation include inadequate consumption of water and other fluids, which aid in the absorption of fibers and produce softer, bulkier stools. Eating more of this can also make it easier and more common to pass stool (Jani and Marsicano, 2018).

NATURAL REMEDIES

Eliminating the main contributing factors is necessary for treating constipation. Therefore, changing the patient's lifestyle may be the initial

step. Including the usage of home treatments could be the second stage. Constipation can be lessened or relieved with minor dietary adjustments (Nimrouzi and Zarshenas, 2019).

Table 1: Summary of natural treatments to relieve constipation in Bangladesh.

Botanical name	Local name (BD)	Main chemical constituents	Uses	References
<i>Cassia acutifolia</i> and <i>Cassia angustifolia</i> .	Sona pata	Sennoside A and B are derived from the aglycones, sennidine A and B, and mucilage, as well as the glycosides, sennosides C and D.	Powder leaf act as strong laxative and cathartic.	(Vilanova-Sanchez <i>et al.</i> , 2018)
<i>Plantago ovate</i> .	Isapgol	Mucilage, aldobionic acid and pentosan. Xylose and arabinose Galactouronic acid and rhamno-sealdobionic acid.	Mixer with water and little lime juice is excellent bulk laxative and demulcent for persistent constipation.	(Mehmood <i>et al.</i> , 2011)
<i>Aloe barbadensis</i> and <i>Aloe ferox</i> .	Ghritokumari	Aloins, Barbaloin, β -barboloin and Isobarbaloin. Amorphous Aloin, resin, emodin and Aloe-emodin.	Eaten as raw and mixing with sharbat. Stimulating purgatives, hydration, skin care products.	(Surjushe <i>et al.</i> , 2008; Dortaj, 2022)
<i>Musa acuminata</i> and <i>Musa balbisiana</i> .	Kola	Carbohydrates, potassium, soluble and insoluble fiber, vitamin C.	Soften stools and passage way.	https://www.healthline.com/nutrition/bananas-and-constipation
<i>Trigonella foenumgraecum</i>	Methi	Fiber, phospholipids, glycolipids, oleic acid, linolenic acid, linoleic acid.	Relieves chronic constipation and gastric problem.	(Ahmad <i>et al.</i> , 2016)
<i>Rheum palmatum</i>	Rauchini	Anthrones, or dianthrones and heterodi-anthrones; anthrones, Chrysophanol, Aloe-emodin, Emodin, anthraquinones.	Stomachic, tonic, antispasmodic, laxative, purgative, and demulcent.	(Xiang <i>et al.</i> , 2020)
<i>Carica papaya</i>	Pabda/Papaya	Proteolytic enzymes	Improves digestion and relieve constipation	(Adebiyi <i>et al.</i> , 2002)
<i>Psidium guajava</i>	Payara	Oleanolic acid, guajanoic acid, fiber, ascorbic acid, lycopene.	Produce bulk stools and increase frequency of defecation	(Naseer <i>et al.</i> , 2018; Deepti and Gulshan, 2022)
<i>Zingiber officinale</i>	Ada	Phytosterols, terpenes, volatile oils, gingerol, paradols, shogaol etc.	Spasmolytic, aromatic, stimulant, and carminative.	(Abidi <i>et al.</i> , 2022)
<i>Embllica officinalis</i>	Amloki	Embicol, pectin, riboflavin, gallic acid, kaempferol.	Natural laxatives, skin care products.	(Akter <i>et al.</i> , 2021)
<i>Malus domestica</i>	Apple	Chlorogenic acid, caffeoylquinic acid (+), Catechin (-), Epicatechin, quercetin and quercetin glycosides, anthocyanins, pectin.	This fiber of <i>M. domestica</i> provides the main part with feces and helps stool move along easily and without force	(Patocka <i>et al.</i> , 2020)
<i>Citrus limonum</i>	Lemon/Lebu	Limonene, beta pinene, citronellal, vitamin C, fiber.	An excessive amount of lime juice mixed with salt water also relieves constipation because it is a great purgative that has no negative side effects.	(Klimek-Szczykutowicz <i>et al.</i> , 2020)
<i>Ocimum basilicum</i>	Tukma	Fiber, zeaxanthin, eugenol, geraniol, protein	Natural laxative, demulcent.	(Calderón Bravo <i>et al.</i> , 2021)
<i>Mangifera indica</i>	Mango/Aam	Polyphenol, gallotannins.	Enhance gastrin levels and fecal concentrations of short chain fatty acids (valeric acid) and improve constipation status (frequency, consistency, and form of stools).	(Venancio <i>et al.</i> , 2018)

Constipation may be alleviated with a high-fiber diet full of fruits, vegetables, legumes, and whole grains. A child's diet should contain 14 gram of dietary fiber for every 1,000 calories. The recommended daily intake of dietary fiber for younger children is 20 gram, for female adolescents it is 29 gram, and for male adolescents and young men it is 38 gram. Medicinal herbs with anti-constipation components are also higher in fiber, making them more advantageous. Additionally, consuming a lot of fluids makes the child's stool softer (Chiarioni *et al.*, 2023).

Allowing enough time for bowel movements is another crucial strategy. After every meal, parents should urge their kids to spend at least five to ten minutes sitting on the toilet. It can be beneficial to give kids little incentives when they try to have a bowel movement. If a child stains their underwear, they shouldn't be disciplined. In addition to dietary adjustments, additional methods like massaging the child's abdomen or using medicinal plants can assist ease of constipation (Jackson, 2001). Potential toxicity is a significant concern when using natural herbs (Baradaran *et al.*, 2013; Asgharzade *et al.*, 2015; Dortaj, 2022). However, the majority of these plants and fruits have less toxicity and less harmful substances.

CONCLUSION

In the context of Bangladesh, this review article highlights essential medicinal plants for the prevention and treatment of constipation. These plants' active compounds may be used to cure constipation, and they can also be used to make plant based new medications. The uncomfortable symptoms of constipation can be avoided or treated by eating a diet high in fiber and other purgative ingredients. For many people suffering from constipation, the consumption of certain herbs or supplements that contain purgative active components extracted from those herbs will be beneficial.

CONFLICT OF INTEREST

Authors declare that there is no conflict of interest regarding this article and its contents.

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