

Exploring the Gastric Protective Effects of Herbal Extracts: A Systematic Review

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ABSTRACT

Medicinal plants have a major role in drug invention & also have efficacy of *For Correspondence the drug. Herbal medicine possess efficacy worldwide along with Safety and very less side effects. A major part of the population suffers due to the Shatadru Bhattacharjee, Post reason of gastric distress which involves IBS, heartburn, diarrhoea, Graduate Fellow, Dr. BC Roy constipation. Several problem occurs due to improper digestion of our College Of Pharmacy And allied food which we used to take in daily basis. It is clinically proved that initial Health Science stage of disease id due to the improper adsorption of food nutrients. The food which also taken by majority of people is may be not processed E-mail: properly which is the main reason to go wrong within our body. The GI problem always comes back. The use of herbal remedy all over the world

Keywords: IBS, heartburn, for GI distress is common from the ancient time & further research on this diarrhoea, constipation will make this herbal remedy of gastric distress will make a innovative way for GI problems.

INTRODUCTION

The Synthetic compounds like antacids, Digestive enzyme sold have any indication & there are a lot of people out there that are suffering from digestive disorders ^[1-7]. Indigestions may not sound like a major health problem. Large volume or less acid in the stomach generally related to the regulatory disorder. This means the patient has a problem in his nervous system or to the stomach or a problem with hormonal regulatory gland, especially the pituitary gland. Digestive organs like liver, [pancreas](#), intestine, [gallbladder](#), stomach have close nerve and hormonal communication. As digestive organs produce a large amount of fluids and juices full of enzymes, a lack of minerals or a kidney problem is directly related to central gland & the rate of secretion ^[8-15]. depends upon the time and quantity of food materials. The problem with all the antacids and drugs is not able to fix anything & as a result GI problem always comes back. Digestive disorder comes out as a result of some another problem. That's the reason why synthetic medicine is not effective as a permanent solution of GI problem but for plant source of medicine is much effective rather than allopathic medicine ^[16-27].

List of Major Societies

Many [societies](#) in the USA committed to saving lives and finishing the fight against adverse effects of antacid, Digestive enzyme etc ^[28-34].

Many Association and societies in USA like American Gastroenterological Association addressed by the plan, the essence of which is summed up by the mission statement: For more advancement of the Science and Practice of Gastroenterology ^[35-43]. Another society, The WGO Foundation ^[35-43] is the resource for the World Gastroenterology Organization . Incorporated as a 501 (c)(3) organization in 2007, the Foundation

was established as a strategic response to increasing demand to solicit financial support for WGO's global and developing low-resource country training and educational programs.

[Journal of Gastrointestinal & Digestive System](#) supports the [7th Global Congress on Gastroenterology & Endoscopy](#) hosted by Conference Series LLC took place at Atlanta, Georgia, USA during September 12-14, 2016. Active participation and generous response were received from the Organizing Committee Members, Editorial Board Members of Conference Series LLC. In this conference few dignitaries presented their valuable speech about their topic few of these are as follows^[44-57]

[Muhammad Jawad](#) (Orlando Regional Medical Center, USA) presented a lecture for the topic of - Abdominal pain after bariatric surgery .

Simon S Rabinowitz (Downstate Children's Hospital, USA) presented a lecture for the topic of - The role of endosonography (EUS) in evaluating pediatric eosinophilic esophagitis (EoE).

[Ashwani K Singal](#) (University of Alabama at Birmingham, USA) presented a lecture for the topic of - Acute Kidney Injury among Patients with Cirrhosis^[58-64].

Types of gastric Distress

There are different types of gastro disease, like

- [Colorectal Cancer](#)- In the U.S., colorectal cancer (CRC) is common cancer diagnosed among people and the leading reason of cancer death. It can be prevented by the detection and removal of adenomatous (benign tumor of glandular tissue).
- IBD - The two IBD(inflammatory bowel diseases) are UC(Crohn's disease and ulcerative colitis) most care for these chronic diseases which might be life threatening of hospitalization and also curable through herbal remedy^[65-71].
- Esophageal Diseases - The most common esophageal diseases seen by gastroenterologists are Barrett's esophagus and GERD. It may be Caused from congenital conditions. Several people experience a burning feeling in their chest occasionally, which caused by refluxing of stomach acid into the esophagus also known as heartburn.
- [Liver Diseases](#) - Liver disease is a very common disease now a days ,it's because of daily food habit , alcohol, drinking water. It is a condition that damages the liver and prevents it from functioning well. Different types of liver disease is in there like [Nonalcoholic fatty liver disease](#), [Hepatitis c](#), Hepatitis B, Cirrhosis of the liver, Alcoholic hepatitis, Hepatitis A, Hemochromatosis^[72-73].
- Pancreatic Disorders - Pancreatitis is a disease in which inflammation starts & there are two forms of pancreatitis which are differentiated by symptoms and treatment.
- Irritable Bowel Syndrome - IBS is the one of the commonest disease which is found in the 15-20 % of the population^[74- 79]. It is an intestinal disorder causing pain in the lower abdomen, gas, constipation, diarrhea.

- Functional GI Disorders – It is a common health problem that are characterized by tenacious and recurring Gastro intestinal symptoms. These is due to abnormal functioning of the GI tract.
- [Peptic Ulcer](#)- An ulcer is an sore. The word peptic denotes that the cause of the problem is due to acid secretion. The most common types of peptic ulcer are gastric ulcers and duodenal ulcers^[80-87].

There are several treatment mentioned in many books for herbal source of medicine are as follows

- Coconut water in useful as a simple remedy for acidity.
- Mix of honey , apple cider vinegar, water before meals fights acidity which is an potent herbal remedy for acidity^[88-93].
- Ocimum tenuiflorum have a medicinal value for gas and stomach burning.
- Almond is an anti acidic substance.
- Sugary cold water relieves from burning of stomach.
- Carrots, tomato mixture can be taken because these are natural remedy cure for acidity.
- Radish + black pepper improve digestion.
- Chewing of cloves fight from acidity.
- Powder of amlaki + honey thrice a day is useful get relief from [acid reflux](#).
- Cold milk relief from acidity^[88-93].
- Eating of Jaggery subsides burning stomach.
- Eating of yoghurt is helpful for [burning stomach](#).
- Eat water melon, banana and cucumber to get relief from acid reflux.
- Strained the mix of 1 cup of warm water & add 1 tsp of honey for acidity.
- Sipping of boil mint leaves having a good experience in acidity.
- Baking soda in small quantity is quite helpful for immediate relief.
- Ginger minimize indigestion.
- Cardamom is useful for getting relief from acidity.
- Herbal tea that contains spearmint +licorice is quite helpful.

CONCLUSION

In the scope of the present study, few medicinal plants and some other substance have a strong digestive and anti acidic property^[94-97]. The majority of medicinal plants determined in this study grow in the wild, Some of known herbal plant are cultivated .By processing of these plant extract like decoction infusion and by addition of some other substance the medicine is made up of. Mostly used herbs like ginger, garlic, lavender, thime, Chamomile, Dendalion. Mostly used parts of the plants were the leaves and fruits. Moreover medicinal value of the herbal source is more effective and a suitable way to treat [gastroenterological problem](#) & and after few decads herbal remedy of gastro will be more popular^[98-100].

REFERENCES

1. Bernal W, Wendon J. Acute liver failure. N Engl J Med 2013;369:2525-2534.

2. Bernal W, et al. Acute liver failure: A curable disease by 2024? *J Hepatol.* 2015;62:S112-120.
3. Bernal W, et al. Lessons from look-back in acute liver failure? A single centre experience of 3300 patients. *J Hepatol.* 2013;59:74-80.
4. Larsen FS, et al. High-volume plasma exchange in patients with acute liver failure: An open randomised controlled trial. *J Hepatol.* 2016;64:69-78.
5. O'Grady JG, et al. Acute liver failure: redefining the syndromes. *Lancet.* 1993;342:273-275
6. Trey C, Davidson CS. The management of fulminant hepatic failure. *Prog Liver Dis.* 1970;3:282-298.
7. Bernuau J, et al. Fulminant and subfulminant liver failure: definitions and causes. *Semin Liver Dis.* 1986;6:97-106.
8. Clemmesen JO, et al. Cerebral herniation in patients with acute liver failure is correlated with arterial ammonia concentration. *Hepatol.* 1999;29:648-653.
9. Clemmesen JO, et al. Effects of high-volume plasmapheresis on ammonia, urea, and amino acids in patients with acute liver failure. *Am J Gastroenterol.* 2001;96:1217-1223.
10. Bjerring PN, et al. The effect of fractionated plasma separation and adsorption on cerebral amino acid metabolism and oxidative metabolism during acute liver failure. *J Hepatol.* 2012;57:774-779.
11. Schmidt LE, Larsen FS. Prognostic implications of hyperlactatemia, multiple organ failure, and systemic inflammatory response syndrome in patients with acetaminophen-induced acute liver failure. *Crit Care Med.* 2006;34:337-343.
12. Rolando N, et al. The systemic inflammatory response syndrome in acute liver failure. *Hepatol.* 2000;32:734-739.
13. Vaquero J, et al. Infection and the progression of hepatic encephalopathy in acute liver failure. *Gastroenterology.* 2000;125:755-764.
14. Schmidt LE, et al. MELD score as a predictor of liver failure and death in patients with acetaminophen-induced liver injury. *Hepatol.* 45:789-796.
15. McPhail MJ. Ability of King's College Criteria and Model for End-Stage Liver Disease Scores to Predict Mortality of Patients With Acute Liver Failure: A Meta-analysis. *Clin Gastroenterol Hepatol.* 2016;14:516-525.
16. Craig DG, et al. The sequential organ failure assessment (SOFA) score is prognostically superior to the model for end-stage liver disease (MELD) and MELD variants following paracetamol (acetaminophen) overdose. *Aliment Pharmacol Ther.* 2012;35:705-713.
17. Jalan R, et al. Development and validation of a prognostic score to predict mortality in patients with acute-on-chronic liver failure. *J Hepatol.* 2014;61:1038-1047.
18. Eefsen M, et al. Comparison of terlipressin and noradrenalin on cerebral perfusion, intracranial pressure and cerebral extracellular concentrations of lactate and pyruvate in patients with acute liver failure in need of inotropic support. *J Hepatol.* 2007;47:381-386.
19. Acharya SK, et al. Efficacy of L-ornithine L-aspartate in acute liver failure: a double-blind, randomized, placebo-controlled study. *Gastroenterology.* 2009;136:2159-2168.
20. Bass NM, et al. Rifaximin treatment in hepatic encephalopathy. *N Engl J Med.* 2010;362:1071-1081.

21. Slack AJ, et al. Ammonia clearance with haemofiltration in adults with liver disease. *Liver Int.* 2014;34:42-48.
22. Murphy N, et al. The effect of hypertonic sodium chloride on intracranial pressure in patients with acute liver failure. *Hepatol.* 2004;39:464-470.
23. Jalan R, et al. Moderate hypothermia for uncontrolled intracranial hypertension in acute liver failure. *1999;354:1164-1168.*
24. Tofteng F, Larsen FS. The effect of indomethacin on intracranial pressure, cerebral perfusion and extracellular lactate and glutamate concentrations in patients with fulminant hepatic failure. *J Cereb Blood Flow Metab.* 2004;24:798-804.
25. Antoniades CG, et al. The importance of immune dysfunction in determining outcome in acute liver failure. *J Hepatol.* 2008;49:845-861.
26. Audimoolam VK, et al. Lung injury and its prognostic significance in acute liver failure. *Crit Care Med.* 2014;42:592-600
27. Lee WM, et al. (2009) Intravenous N-acetylcysteine improves transplant-free survival in early stage non-acetaminophen acute liver failure. *Gastroenterology.* 2009;137:856-864.
28. Freed K, Low VH. The aberrant subclavian artery. *AJR Am J Roentgenol.* 1997;168:481-484.
29. Levitt B, Richter JE (2007) Dysphagia lusoria: a comprehensive review. *Dis Esophagus* 20:455-460.
30. Maldonado JA, Henry T, Gutiérrez FR. () Congenital thoracic vascular anomalies. *Radiol Clin North Am.* 2010;48:85-115
31. de Araújo G, et al. "Dysphagia lusoria" - Right subclavian retroesophageal artery causing intermittent esophageal compression and eventual dysphagia - A case report and literature review. *Int J Surg Case Rep.* 2015;10:32-34.
32. Carucci LR, Turner MA. Dysphagia Revisited: Common and Unusual Causes. *Radiographics.* 2015;35:105-122.
33. Bennett AL, et al. Dysphagia lusoria: a late onset presentation. *World J Gastroenterol.* 2013;19:2433-2436.
34. Berrocal T, et al. Congenital anomalies of the tracheobronchial tree, lung, and mediastinum: embryology, radiology, and pathology. *Radiographics.* 2004;24:e17.
35. Lee KG, Lath N. Dysphagia lusoria - a rare cause of prolonged Dysphagia. *Med J Malaysia.* 2015;70:52-53.
36. Sundaram B, et al. Can CT features be used to diagnose surgical adult bowel intussusceptions? *AJR Am J Roentgenol.* 2009;193:471-478.
37. Cullen JJ, et al. Surgical management of Meckel's diverticulum. An epidemiologic, population-based study. *Ann Surg.* 1994;220:564-568.
38. Sagar J, et al. Meckel's diverticulum: a systematic review. *J R Soc Med.* 2006;99:501-505.
39. Thirunavukarasu P, et al. Meckel's diverticulum--a high-risk region for malignancy in the ileum. Insights from a population-based epidemiological study and implications in surgical management. *Ann Surg.* 2011;253:223-230.
40. Yamaguchi M, et al. Meckel's diverticulum. Investigation of 600 patients in Japanese literature. *Am J Surg.* 1978;136:247-249.
41. Bouassida M, et al. Intussusception caused by an inverted Meckel's diverticulum: a rare cause of small bowel obstruction in adults. *Pan Afr Med J.* 2011;10:57.

42. Leijonmarck CE, et al. Meckel's diverticulum in the adult. *Br J Surg.* 1986;73:146-149.
43. Dumper J, et al. Complications of Meckel's diverticula in adults. *Can J Surg.* 2006;49:353-357.
44. Weinstein EC, et al. Meckel's diverticulum: 55 years of clinical and surgical experience. *JAMA.* 1962;182:251-253.
45. Won Y, et al. Multidetector-row computed tomography (MDCT) features of small bowel obstruction (SBO) caused by Meckel's diverticulum. *Diagn Interv Imaging.* 2016;97:227-232.
46. Hosn MA, et al. Laparoscopic approach to symptomatic meckel diverticulum in adults. *JLS.* 2014;18:e2014.00349.
47. Aytug ÖN. Environment and inflammatory bowel diseases: internal and external environment of the prognosis and treatment projection. In: Göksoy M, Munger Z, Senturk H, eds. *Current Gastroenterology and Hepatol.* Istanbul Scientific Medical Publishing, Turkey. 2001;pp:274-279.
48. Hogston R. Nursing management of irritable bowel syndrome. *Br J Nurs.* 1993;2:215-217.
49. Jameison AE, et al. Seeking control through the determination of diet: a qualitative investigation of women with irritable bowel syndrome and inflammatory bowel disease. *Clin Nurse Spec.* 2007;21:152-160.
50. Nobaek S, et al. Alteration of intestinal microflora is associated with reduction in abdominal bloating and pain in patients with irritable bowel syndrome. *Am J Gastroenterol.* 2000;95:1231-1238.
51. Aksayan S, Gözüm S. Guide for intercultural adaptation of scale: scale adaptation phase and language adaptation. *J Nurs Res.* 2002;4:9-14.
52. Patrick DL, A. Quality of life in persons with irritable bowel syndrome (IBS-QOL): development and validation of a new measure. *Dig Dis Sci.* 1998;43:400-411.
53. Haghayegh SA, et al. Psychometric characteristics of the Persian version of the irritable bowel syndrome quality of life questionnaire. *Pak J Med Sci.* 2012;28:312-317.
54. Uran BNO, et al. The Turkish version of the Rome III criteria for IBS is valid and reliable. *Turk J Gastroenterol.* 2014;25:386-392.
55. Koçyigit H, et al. Short Form-36 (KF-36) The reliability and validity of the Turkish version. *J Drug Ther.* 1999;12:102-106.
56. Aksayan S, Gözüm S. Guide for intercultural adaptation of scale: psychometric properties and cultural comparison. *J Nurs Res.* 2002;4:9-20.
57. Ercan I, Kan I. Reliability and Validity in The Scales. *UludagUniv Med Fac J.* 2004;30:211-216.
58. Park JM, et al. Cross-cultural validation of irritable bowel syndrome quality of life in Korea. *Dig Dis Sci.* 2006;51:1478-1484.
59. Jafari P, et al. Health related quality of life in Iranian patients with irritable bowel syndrome: reliability and validity of the Persian Version of the IBS-QOL. *Iranian Red Crescent Med J.* 15:723728.
60. Kanawaza M, et al. Translation and validation of a Japanese version of the irritable bowel syndrome-quality of life measure (IBS-QOL-J) *Biopsychosoc Med.* 2007;1:01-07.

61. Al-Khafaji A, Huang DT. Critical care management of patients with end-stage liver disease. *Crit Care Med.* 2011;39:1157-1166.
62. Bell H, et al. Long-term prognosis of patients with alcoholic liver cirrhosis: a 15-year follow-up study of 100 Norwegian patients admitted to one unit. *Scand J Gastroenterol.* 2004;39:858-863.
63. D'Amico G, et al. Natural history and prognostic indicators of survival in cirrhosis: a systematic review of 118 studies. *J Hepatol.* 2006;44:217-231.
64. Tessari P. Protein metabolism in liver cirrhosis: from albumin to muscle myofibrils. *Curr Opin Clin Nutr Metab Care.* 2003;6:79-85.
65. Ballmer PE, et al. Albumin synthesis rates in cirrhosis: correlation with Child-Turcotte classification. *Hepatol.* 1993;18:292-297.
66. Tessari P, et al. Impairment of albumin and whole body postprandial protein synthesis in compensated liver cirrhosis. *Am J Physiol Endocrinol Metab.* 2002;282:E304-E311.
67. Alberino F, et al. Nutrition and survival in patients with liver cirrhosis. *Nutrition.* 2001;17:445-450.
68. Lundholm K, et al. Albumin and Hepatic Protein Synthesis in Patients with Early Cancer. *Cancer.* 1980;46:71-76.
69. Stehle G, et al. Albumin Synthesis Rates in Cachectic Cancer Patients with an Ongoing Acute Phase Protein Response. *Ann Surg.* 1998;228:720.
70. Kujovich JL. Hemostatic defects in end stage liver disease. *Crit Care Clin.* 2005;21:563-587.
71. Fearon KCH, et al. Elevated Circulating Interleukin-6 is Associated with an Acute-Phase Response but Reduced Fixed Hepatic Protein Synthesis in Patients with Cancer. *Ann Surg.* 1991;213:26-31.
72. McMillan DC, et al. Simultaneous Measurement of Albumin and Fibrinogen Synthetic Rates in Normal Fasted Subjects. *Nutrition.* 1996;12:602-607.
73. Heys SD, et al. Protein synthesis rates in colon and liver: stimulation by gastrointestinal pathologies. *Gut.* 1992;33:976-981.
74. Quinlan GJ, et al. Albumin: biochemical properties and therapeutic potential. *Hepatol.* 2005;41:1211-1219.
75. Barber MD, et al. Liver Export Protein Synthetic Rates are Increased by Oral Meal Feeding in Weight-losing Cancer Patients. *Am J Physiol Endocrinol Metab.* 2000;279:E707-E714.
76. Preston T, et al. Fibrinogen synthesis is elevated in fasting cancer patients with an acute phase response. *J Nutr.* 1998;128:1355-1360.
77. Al-Shaiba R, et al. The Relationship Between Hypoalbuminaemia, Tumour Volume and the Systemic Inflammatory Response in Patients with Colorectal Liver Metastases. *Br J Cancer.* 2004;91:205-207.
78. Fearon KCH, et al. Albumin Synthesis Rates are Not Decreased in Hypoalbuminemic Cachectic Cancer Patients With an Ongoing Acute-Phase Protein Response. *Ann Surg.* 1998;227:249-254.
79. Child CG, Turcotte JG. Surgery and Portal Hypertension. *Major Probl Clin Surg.* 1:01-85.
80. O'Keefe SJ, et al. Malnutrition and immuno-incompetence in patients with liver disease. *Lancet.*

- 1980;2:615-617.
81. Roberts HR, et al. The dysfibrinogenaemias. *Br J Haematol.* 2001;114:249-257.
 82. Witte KK, et al. Fibrinogen synthesis is increased in cachectic patients with chronic heart failure. *Int J Cardiol.* 2008;129:363-367.
 83. Gabay C, Kushner I. Acute-phase proteins and other systemic responses to inflammation. *N Engl J Med.* 1999;340:448-454.
 84. Garlick PJ, et al. A rapid and convenient technique for measuring the rate of protein synthesis in tissues by injection of [3H]phenylalanine. *Biochem J.* 1980;192:719-723.
 85. McNurlan MA, et al. Measurement of protein synthesis in human skeletal muscle: further investigation of the flooding technique. *ClinSci (Lond).* 1991;81:557-564.
 86. McNurlan MA, et al. Response of protein synthesis in human skeletal muscle to insulin: an investigation with L-[2H5]phenylalanine. *Am J Physiol.* 1994;267:E102-E108.
 87. Hunter KA, et al. Acute stimulation of albumin synthesis rate with oral meal feeding in healthy subjects measured with [ring-2H5]phenylalanine. *ClinSci (Lond).* 1995;88:235-242.
 88. Preston T, AC Small. Improved measurement of protein synthesis in human subjects using 2Hphenylalanine isotopomers and gas chromatography/mass spectrometry. *Rapid Commun Mass Spectrom.* 24:549-553
 89. Proctor MJ, et al. A comparison of inflammation-based prognostic scores in patients with cancer. A Glasgow Inflammation Outcome Study. *Eur J Cancer.* 2011;47:2633-2641.
 90. Roxburgh CS, McMillan DC. Role of systemic inflammatory response in predicting survival in patients with primary operable cancer. *Future Oncol.* 2010;6:149-163.
 91. Seve P, et al. Low Serum Albumin Levels and Liver Metastasis are Powerful Prognostic Markers for Survival in Patients with Carcinomas of Unknown Primary Site. *Cancer.* 2006;107:2698-2705.
 92. Rolando N, et al. The systemic inflammatory response syndrome in acute liver failure. *Hepatology.* 2000;32:734-739.
 93. Cazzaniga M, et al. The Systemic Inflammatory Response Syndrome in Cirrhotic Patients: Relationship with their In-Hospital Outcome. *J Hepatol.* 2009;51:475-482.
 94. Shawcross DL, et al. Systemic Inflammatory Response Exacerbates the Neuropsychological Effects of Induced Hyperammonemia in Cirrhosis. *J Hepatol.* 2004;40:247-254.
 95. Claudon M, et al. Guidelines and good clinical practice recommendations for contrast enhanced ultrasound (CEUS) in the liver--update 2012: a WFUMB-EFSUMB initiative in cooperation with representatives of AFSUMB, AIUM, ASUM, FLAUS and ICUS. *Ultraschall Med.* 2013;34:11-29.
 96. Bertolotto M, et al. Characterization of unifocal liver lesions with pulse inversion harmonic imaging after Levovist injection: preliminary results. *Eur Radiol.* 2000;10:1369-1376.
 97. Burns PN, et al. Pulse inversion imaging of liver blood flow: improved method for characterizing focal masses with microbubble contrast. *Invest Radiol.* 2000;35:58-71.
 98. Lencioni R, et al. Ultrasound imaging of focal liver lesions with a second-generation contrast agent. *Acad Radiol* 9 Suppl. 2002;2:S371-374.

99. Yanagisawa K, et al. Phagocytosis of ultrasound contrast agent microbubbles by Kupffer cells. *Ultrasound Med Biol.* 2007;33:318-325.
100. Wilson SR, et al. An algorithm for the diagnosis of focal liver masses using microbubble contrast-enhanced pulse-inversion sonography. *AJR Am J Roentgenol.* 2006;186:1401-1412.