



Managing Upper Digestive Problems with Herbs: Recent Developments and New Insights

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Topics Covered

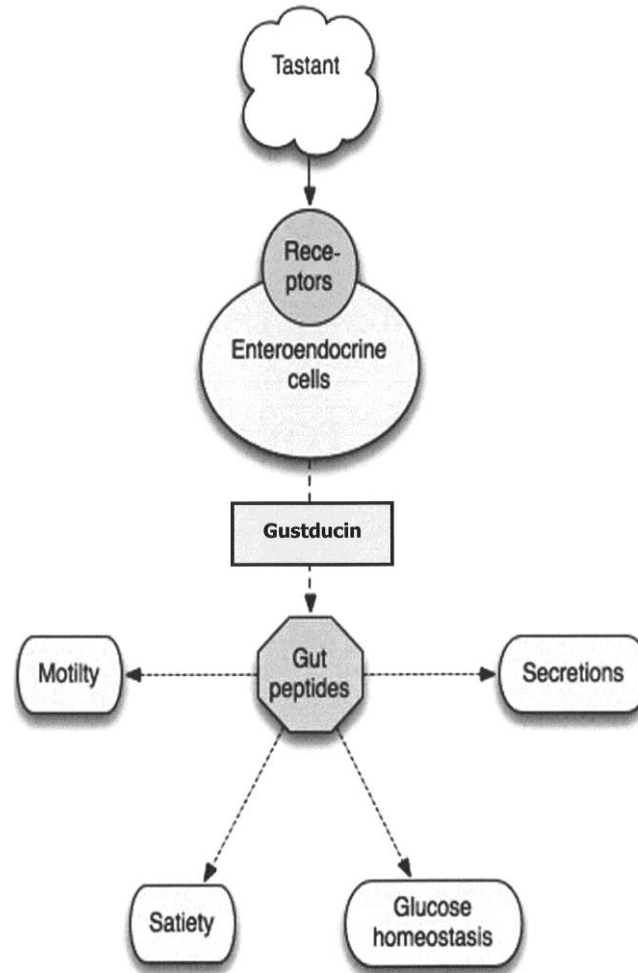


- The upper digestive tract is a tasting organ
- Key herbal actions, evidence and new insights:
 - bitter
 - pungent
 - demulcent and mucoprotective
 - carminative
 - choloretic/cholagogue
- The importance of the gastric acid barrier
- Selected important upper digestive health issues discussed

The Five Tastes



The Upper GIT is a Tasting Organ

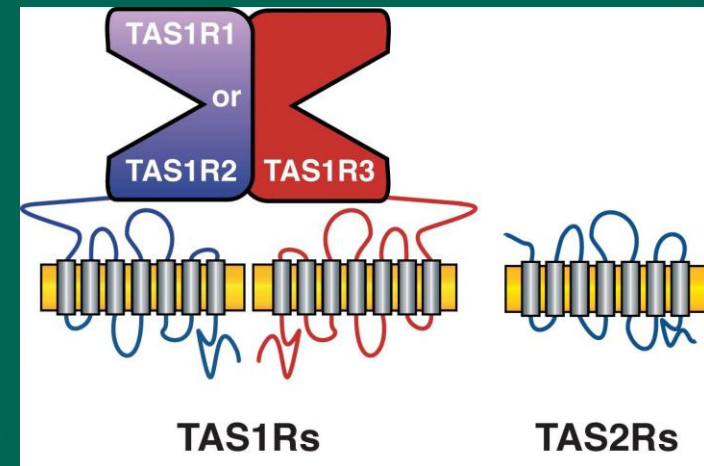


Modified from:
Valussi M.
Functional foods with digestion-
enhancing
properties.
Int J Food Sci Nutr 2012;
63(Suppl 1):
82-89

The Bitter Receptor

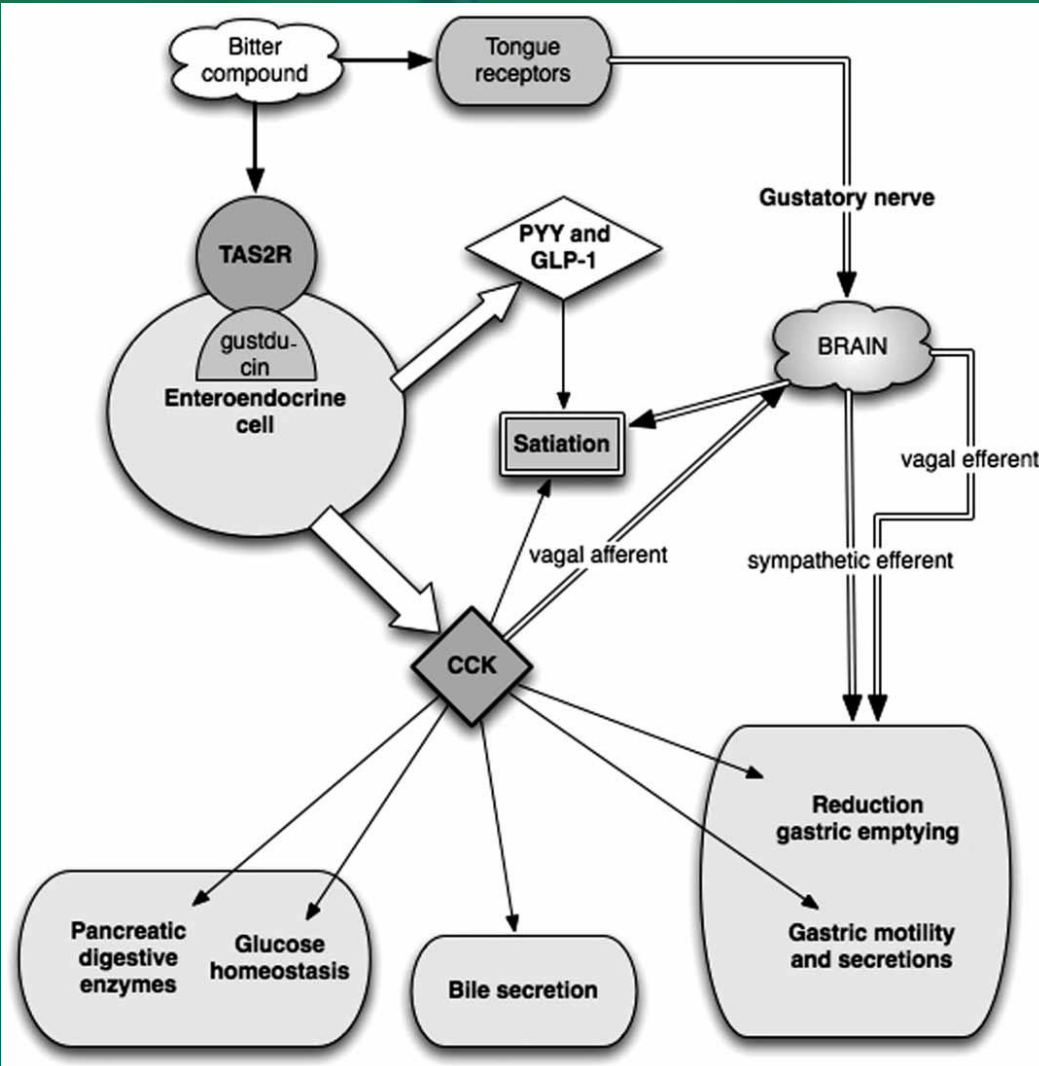


- Recent research has made considerable advances in our understanding of the bitter taste receptors. A family of approximately 30 such receptors (denoted TAS2R, previously T2R) has been identified in mammals¹
- The TAS2Rs are broadly tuned to each detect multiple bitter substances, explaining how humans can recognize numerous bitter compounds with only a limited set of receptors




1 Meyerhof W. *Rev Physiol Biochem Pharmacol* 2005; **154**: 37-72

Upper Gastrointestinal Effects of Bitters



Valussi M. Functional foods with digestion-enhancing properties. *Int J Food Sci Nutr* 2012; 63(Suppl 1): 82-89



Gentiana lutea
Gelber Enzian
Bitterstoffe

A New Insight into the Bitter Action



- Bitter herbs do NOT need to be tasted to support digestive function
- In fact, clinical research on Gentian dating from 1998¹ supports this concept but now we understand why
- This means that tablets or capsules containing bitter herb provide support, although higher doses are probably necessary



1 Wegener T. *Z Phytother* 1998; **19**: 163-164

Bitters Help Regulate Metabolic Function



Functional variants in bitter taste receptors linked to various health challenges^{1,2,3,4}

- 1 Wang JC, Hinrichs AL, Bertelsen S, et al, 2007, **Functional variants in TAS2R38 and TAS2R16 influence alcohol consumption in high-risk families of African-American origin.** Alcohol Clin Exp Res. Feb;31(2):209-15
- 2 Tepper BJ, Koelliker Y, Zhao L, et al, 2008, **Variation in the bitter-taste receptor gene TAS2R38, and adiposity in a genetically isolated population in Southern Italy.** Obesity (Silver Spring). Oct;16(10):2289-95
- 3 Dotson CD, et al, 2010, **Variation in the gene TAS2R38 is associated with the eating behavior disinhibition in Old Order Amish women.** Appetite. Feb;54(1):93-9
- 4 Feeney E, et al, 2011, **Genetic variation in taste perception: does it have a role in healthy eating?** Proc Nutr Soc. Feb;70(1):135-43

Bitters Can Help Regulate Metabolic Function



- Generally, people with lower bitter tasting sensitivity exhibited the more challenged health measure
- The presence of bitter receptors on enteroendocrine cells suggests the mechanism behind these effects



Bitters Can Help Support Metabolic Function



Insulin Function

- It also suggests a role for bitter herbs in normal healthy glucose homeostasis and insulin function
- In support of this 94 patients with challenges showed improvements when given just 16 to 48 mg/day of isohumulones (hop bitter acids) as capsules in a double blind placebo-controlled clinical trial¹



1 Obara K, Mizutani M, Hitomi Y et al. Isohumulones, the bitter component of beer, improve hyperglycemia and decrease body fat in Japanese subjects with prediabetes. *Clin Nutr* 2009; **28**(3): 278-284

Pungent Herbs



- Like bitters, pungency is a physiological (sensor activated) classification rather than a phytochemical one
- The three most commonly used hot spices are the cayenne pepper (*Capsicum species*), the black pepper and Ginger
- While their pungent components (respectively capsaicin, piperine and the gingerols and shogaols) are chemically distinct, it is now known that they act upon a common group of nerve cell receptors: the vanilloid receptors, especially TRPV1¹

1 Papoiu AD, Yosipovitch G. *Expert Opin Pharmacother* 2010; **11**(8): 1359-1371



Ginger



- Ginger and/or the gingerols promote gastric acid, are mucoprotective, promote normal bile flow and support gastrointestinal motility
- Human clinical studies demonstrate marked effects on temporary stomach upset and substantially improved stomach function
- Clinical activity has been demonstrated in patients experiencing stomach challenges and upper abdominal discomfort¹

1 Ming-Luen Hu, etal, **Effect of ginger on gastric motility and symptoms of functional dyspepsia.** *World J Gastroenterol* 2011 January 7; 17(1): 105-110

The Gastric Acid Barrier



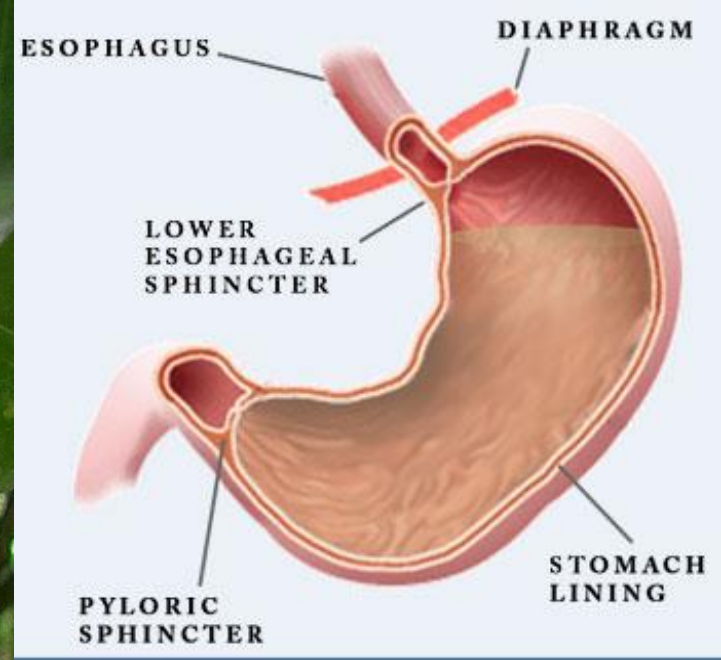
- A challenged gastric acid barrier is a relatively neglected issue in gut flora support



Carminative Herbs



- Carminative herbs relieve gas and soothe intestinal spasm and discomfort by supporting normal function of intestinal smooth muscle, especially sphincters
- Hence carminatives in lower doses can help support digestive function by better coordinating normal gastric contractions
- Chamomile and Tangerine peel are well known carminatives



Spasmolytic Herbs



- Spasmolytic herbs support normal relaxation of smooth muscle of the digestive tract
- Chamomile has good activity



Choleretics and Cholagogues

- Choleretic = Normal bile production
- Cholagogue = Normal bile delivery
- Clinically-proven choleretic and cholagogue herbs are relatively few
- Best data exists for Globe Artichoke
- In an open clinical study involving 198 patients with biliary challenge, Globe Artichoke extract demonstrated choleretic and cholagogue effects and clinical improvement¹



1 Hammerl H, Pichler O. *Wien Med Wochenschr* 1957; **107**(25/26): 545-546



DiGest



Dandelion root 4:1 extract from <i>Taraxacum officinale</i> root 500 mg	125 mg
Tangerine fruit peel 5:1 extract from <i>Citrus reticulata</i> fruit peel 500 mg	100 mg
Milk Thistle fruit 70:1 extract from <i>Silybum marianum</i> fruit 2.1 g	30 mg
Ginger rhizome 5:1 extract from <i>Zingiber officinale</i> rhizome 100 mg	20 mg
Gentian root 5:1 extract from <i>Gentiana lutea</i> root 100 mg	20 mg
Tangerine (<i>Citrus reticulata</i>) fruit peel ess oil	12.5 mg
Chamomile (<i>Matricaria recutita</i>) flower ess oil	5 mg

Dose: 1 tablet 15 to 30 minutes before each meal

DiGest: Indications



- Support healthy digestion
- Stimulate appetite
- Help address mild upper abdominal discomfort associated with indigestion
- Reduce flatulence
- Support normal bowel function
- Generally improve tone of the digestive tract
- Support food challenges

Livton® Complex



Globe Artichoke leaf 4:1 ext	200 mg
from <i>Cynara scolymus</i> leaf 800 mg	
Dandelion root 4:1 extract	100 mg
from <i>Taraxacum officinale</i> root 400 mg	
Milk Thistle fruit 70:1 ext	100 mg
from <i>Silybum marianum</i> fruit 7.0 g	
Containing flavanolignans calc. as silybin	80 mg
Bupleurum root 4.5:1 ext	66.7 mg
from <i>Bupleurum falcatum</i> root 300 mg	
Fringe Tree stem bark 5:1 ext	32 mg
from <i>Chionanthus virginica</i> stem bark 160 mg	
Dose: 1 tablet 2-4 times per day	

Livton Complex: Indications



- Support of liver and/or gallbladder function
- Mild upper abdominal discomfort associated with indigestion
- Stimulate appetite
- Reduce flatulence and intestinal bloating
- Promote healthy bowel function
- Support skin and gastrointestinal challenges associated with reduced digestive liver function

Challenged Digestive Function



Core Support

- DiGest (1 tablet 15 to 30 minutes before each meal)

And

- Zypan[®] (2 tablets with each meal)

Challenged Digestive Function



Additional Support (as required)

- Livton Complex tablets (1 tablet 15 to 30 minutes before each meal) to support fatty food digestion and where liver support is indicated

And/Or

- A-F Betafood[®] (2 tablets per meal) to support fatty food digestion and healthy bile production and flow

Gastric Emptying



- Challenges include abdominal distention, abdominal fullness (discomfort) after eating, and abdominal bloating

Challenged Gastric Emptying: Case History



- A female patient aged 56 presented with occasional stomach upset, occasional 'heartburn' and premature fullness
- Conventional therapies had been unsatisfactory
- Ginger 1:2 extract at 1 to 2 mL with water before each meal
- DiGest tablets (1 before each meal, sucked for 60 seconds and then swallowed)

Challenged Gastric Emptying: Case History



- 4 weeks later she reported that her occasional stomach upset and occasional heartburn were gone, but the bloating was still there
- Over the ensuing months the patient reported her digestion as “good”, with minimal challenge as long as she remembered her herbs



Demulcency and Mucoprotection



- Mucilaginous therapies are used for internal demulcent properties and their direct, if temporary, support of digestive tract challenges
- This effect is probably more than just mechanical, although the protective benefits of a layer of mucilage on the digestive mucosa are obvious, especially as an extra barrier to normal gastric acid
- Marshmallow root is good example

Demulcency and Mucoprotection



- In experimental models the protective effect of mucilage isolated from *Plantago major* leaves against gastric challenge has been demonstrated¹
- It has also been shown that guar gum forms a layer closely associated with the intestinal mucosal surface providing a protective barrier²



- 1 Obolentseva GV et al. Effect of some natural substances on ulceration of the rat stomach caused by acetylsalicylic acid. *Bull Exp Biol Med* 1974; **77**: 256-257
- 2 Blackburn NA, Johnson IT. The influence of guar gum on the movements of insulin, glucose and fluid in rat intestine during perfusion in vivo. *Pflügers Archiv* 1983; **397**: 144-148

Demulcency and Mucoprotection



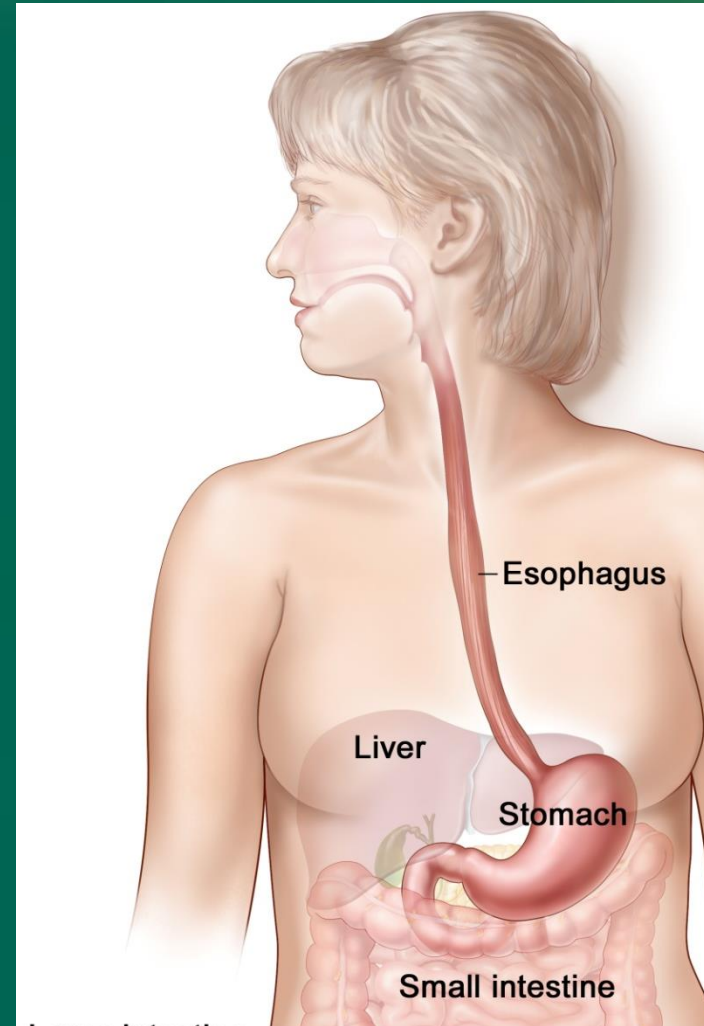
- In contrast to previous views, gastric aging is not associated with reduced acid production
- It is however linked to challenged gastric mucosal defenses
- Challenged recovery capacity is also a key feature for elderly patients
- This all suggests a key support role for herbs like Gotu Kola and herbs that enhance mucoprotection



Digestive Discomfort



- Discomfort in the upper abdomen
- It is reported by around 25% of adults in Western societies
- Challenges with esophagus function, stomach and/or small intestine function



Agreus L, Talley NJ. *Annu Rev Med* 1998; **49**: 475-493

Peptic Challenges



- Can be duodenal and gastric
- Support the gastric mucosa in the stomach
- Support the gastric metaplasia mucosa in the duodenum

Calam J, Baron JH. *BMJ* 2001; **323**: 980-982

Chow DK, Sung JJ. *Nat Clin Pract Gastroenterol Hepatol* 2007; 4(4):176-177

Peptic Challenges: The Forgotten Factors



- Diet
- Lifestyle
- Stress management



Herbs for Peptic Challenge



- Current research suggests that herbs can have only a supportive role in cleansing and they are most suitable for cases where conventional therapy is not fully successful
- Activity has been demonstrated *in vitro* for Garlic, Thyme, Cinnamon, Golden Seal, Bearberry and Green Tea
- Moderate benefits have been shown in clinical trials for raw garlic, Cranberry, Broccoli sprouts

Bone K. Helicobacter: A Hidden Factor in Cardiovascular, Digestive, Autoimmune and Skin Disorders. *Townsend Letter for Doctors* 2006; **271/272**: 48-50

Peptic Support Strategy



- Licorice and mucilaginous demulcent herbs (Marshmallow Root) to support mucous membranes. These are best taken at least half an hour before meals or eating
- Licorice also supports pancreatic bicarbonate production and secretion
- While bitter herbs such as Gentian are contraindicated in duodenal ulcers, they may be valuable in gastric support due to their trophic effects on the gastric mucous membranes

Peptic Support Strategy



- Golden Seal is restorative to mucous membranes and also has a cleansing action. However, because of its bitterness it is best given as a tablet
- Other herbs such as Thyme and Garlic also have a cleansing action as do Grape Seed extract and Green Tea

Peptic Support Strategy



- Immune system enhancing herbs such as Echinacea will also help support the local environment and improve natural body repair mechanisms. They have been traditionally used for peptic support
- Gently astringent herbs will support gastrointestinal linings and boost mucoprotection. A good example is Meadowsweet

Peptic Support Strategy



- Herbs such as bisabolol-type Chamomile and Calendula will support the normal epithelial repair processes. Herbs which support the microcirculation (Bilberry, Ginkgo and Grape Seed extract) should also assist normal repair processes
- Herbs that support the body's natural ability to adapt to temporary stress are also indicated, eg Skullcap, Valerian and Eleuthero

Peptic Support Strategy



- Meadowsweet is considered by some herbalists to support normal acidity of the stomach.¹
- It does appear to support the health of the gastric mucosa

1 Roberts F. *Modern Herbalism for Digestive Disorders*. Thomsons, Northamptonshire, 1981.

HiPep



Deglycyrrhizinized Licorice root 12:1 extract	285 mg
from <i>Glycyrrhiza glabra</i> root 3.42 g	
Chamomile flower 6:1 extract	100 mg
from <i>Matricaria recutita</i> flower 600 mg	
Meadowsweet herb 5:1 extract	100 mg
from <i>Filipendula ulmaria</i> herb 500 mg	
Chamomile (<i>Matricaria recutita</i>) flower essential oil	5 mg

Dose: 1 - 2 tablets after or before meals

HiPep



Indications

- Supports the tone and function within the upper gastrointestinal tract
- Supports the health of mucosal tissue within the upper gastrointestinal tract
- Reduces occasional stomach acid secretions
- Assists with the normal functioning of the lower esophageal sphincter

Gastroesophageal Challenges



Factors involved are:

- Lower esophageal sphincter (LES) function, perhaps triggered by over eating/drinking¹
- LES muscle tone²
- Gastric emptying
- Esophageal function
- Saliva and mucosal resistance



- 1 Robinson M. **Gastroesophageal reflux disease. Selecting optimal therapy.** *Postgrad Med* 1994; **95**(2): 88-90
- 2 R Farré and D Sifrim. **Regulation of basal tone, relaxation and contraction of the lower oesophageal sphincter** *Br J Pharmacol.* 2008 March; **153**(5): 858–869

Gastroesophageal Support



- Improve mucosal function with demulcent herbs such as Licorice and Marshmallow Root. These are best taken after meals and before bed.
- Spasmolytic herbs such as Cramp Bark and Corydalis to restore balance to smooth muscle function. Carminatives (low doses) may be of value

Gastroesophageal Support



- Support normal sphincter tone and normal gastric emptying and saliva output with bitter tonic herbs at low doses. They should be used cautiously. Gentian and Wormwood are the strongest bitters. If their use aggravates then gentler bitters such as Dandelion Root, Globe Artichoke could be tried
- Support normal levels of gastric acid - the best herb is Meadowsweet

Gastroesophageal Support



- Support normal body repair mechanisms with Chamomile, Gotu Kola
- Support the nervous system with herbs such as Passionflower, Valerian, Skullcap and St John's Wort
- Support gastric function with Ginger



Gastroesophageal Challenges



Core Support

- HiPep Tablets (1 to 2 tablets with water after meals and before bed)

And

- Gastrex[®] 2 capsules 15 -20 minutes before meals

Questions

