

# Plant Digestive Enzymes

Code: FE1310 – 60 vegetable capsules – FE1311 – 120 vegetable capsules



An organic complex that catalyses a digestive biochemical reaction using plant digestive enzymes. It contains all of the enzyme groups that effectively favour the digestion of protein, carbohydrates, fat and other nutrients.

Digestive enzymes make up one of the three large enzyme groups our body needs in order to function, and are specifically involved in the digestive process. Proper digestion increases the biological availability of nutrients, improves food tolerance and inhibits the formation of toxins and other unfavourable substances in the digestive tract. As such, the corresponding symptoms are decreased such as bloating, flatulence, abdominal pain, bowel movement disorders, fatigue and other specific related symptoms.

When foods are cooked and processed, enzymes are destroyed, so these foods no longer contribute some of the enzymes needed for digestion. Although our digestive system produces digestive enzymes, they may be deficient and the digestive process incomplete, causing discomfort. Enzyme production can be reduced by an inadequate diet, stress, certain diseases or simply by age.

**Ingredients:** Plant digestive enzymes concentrate (protease, papain, amylase, lactase, lipase, cellulase, alpha-galactosidase, maltase, invertase, pectinase, glucoamylase, hemicellulase, phytase, bromelain, dipeptidyl peptidase IV), bulking agent: microcrystalline cellulose, anticaking agents: vegetable magnesium stearate and silicon dioxide, vegetable capsule (glazing agent: hydroxypropylmethylcellulose; purified water).

<b>Nutritional information:</b>	<b>Digestive aid</b>	<b>3 caps. (1 662 mg)</b>
Protease I	proteins	124 311 FCC HUT
Protease II	proteins	22 140 FCC HUT
Protease III	proteins	171 FCC SAP
Papain	proteins	900 000 FCC PU
Amylase	all carbohydrates	35 436 FCC DU
Lactase	milk, sugar	1 632 FCC ALU
Lipase	all fats and oils	9 000 FCC LU
Cellulase	all fibres	3.780 FCC CU
<i>alpha</i> -Galactosidase	beans and legumes	57 FCC GaIU
Maltase	all grains	390 FCC DP
Invertase	sugar	240 FCC INVU
Pectinase	Pectins	180 endo PGU
Glucoamylase	Starch	150 FCC AGU
Hemicellulase	vegetable fibres	99,9 FCC AGU
Phytase	Phosphorus	7,50 FCC FTU
Bromelain [60 g]	proteins	2 160 000 FCC PU
Dipeptidyl peptidase IV	gluten	6 150 FCC HUT

FCC: Food Chemicals Codex.

**Contains no:** Artificial flavour or colour, sweeteners, milk or milk products, or wheat.

## Size and format:

60 and 120 vegetable capsules

## Recommended daily dose:

1 capsule three times daily with a meal.  
Do not use on an empty stomach.  
For occasional use only.

Do not exceed the stated recommended daily dose.

## Enzyme units:

FCC: Food Chemicals Codex

- HUT: Haemoglobin Units on the Tyrosine basis
- SAP: Spectrophotometric Acid Protease
- PU: Papain Units
- DU: alpha amylase Dextrinizing Units
- ALU: Acid Lactase Units
- LU: Lipase Units
- CU: Cellulase Units
- GaIU: Galactosidase activity Units
- DP: degrees Diastatic Power
- INVU: Invertase activity Units
- endo-PGU: pectinase units
- AGU: Glucoamylase Units
- HCU: Hemicellulase Units

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Enzyme:	Origin:
Protease I	<i>Aspergillus niger</i>
Protease II	<i>Bacillus subtilis</i>
Protease III	<i>Aspergillus niger</i>
<i>alpha</i> -Galactosidase	<i>Aspergillus niger</i>
Amylase	<i>Bacillus amyloliquefaciens</i>
Bromelain	<i>Ananas comorus stem</i>
Cellulase	<i>Trichoderma reesei</i>
Glucoamylase	<i>Aspergillus niger</i>
Hemicellulase	<i>Aspergillus niger</i>
Invertase	<i>accharomyces cerevisiae</i>
Lactase	<i>Aspergillus oryzae</i>
Lipase	<i>Aspergillus oryzae</i>
Maltase	<i>Hordeum vulgare</i>
Papain	<i>Carica papaya</i>
Pectinase	<i>Aspergillus niger</i>
Phytase	<i>Aspergillus niger</i>
Dipeptidyl peptidase IV	<i>Aspergillus niger</i>

## Indications and uses:

Different studies have shown that the ingredients in PLANT DIGESTIVE ENZYMES can be of help for the following: Digestive stress, nutrient assimilation and absorption, and waste elimination.

It's recommended in cases of poor digestion, gas, food intolerance, tiredness, fatigue and candidiasis.

PLANT DIGESTIVE ENZYMES is not to be taken on an empty stomach, as it may irritate ulcers.

## Cautions:

It is not recommended to use during pregnancy and when breast-feeding or on patients after recent surgery. Consult a health-care practitioner before use if you have gastrointestinal ulcers, if you are treated with medication, especially anticoagulants, or if you have a special medical condition.

**PROTEASES:** Proteases break the peptide chains of proteins, releasing peptides and amino acids. Within this group, we find pepsin which is produced in the stomach and needs a very acid pH in order to be active, and pancreatic proteases liberated in the intestine which act at a base pH<sup>(1,2,3)</sup>.

Poor protein digestion can lead to a whole set of health problems, including food allergy, leaky gut syndrome, toxicity and even skin diseases such as psoriasis.

**PAPAIN:** Papain divides inert proteins into peptides and amino acids. It also has the ability to divide starch, and in smaller amounts, fat<sup>(1,3)</sup>.

**AMYLASE:** Amylases degrade starch and complex sugars in the diet by rupturing glycidic links, releasing monosaccharides (especially glucose)<sup>(1,2,3,4)</sup>.

**LACTASE:** Lactase divides disaccharide lactose in the simple sugars galactose and glucose, facilitating the digestion of dairy products<sup>(3,4)</sup>.

**LIPASE:** Lipase digests fats, breaking them down into fatty acids and glycerin, and increases the absorption of lipophilic nutrients (vitamins A and D). It's synthesized in the pancreas and takes effect in the intestine at a base pH<sup>(1,2,5)</sup>.

**CELLULASE:** Cellulase breaks down fiber and is only found in plants<sup>(3,4,5)</sup>.

**ALPHA-GALACTOSIDASE:** This breaks down sugars like raffinose, stachyose and verbascose and helps digest cereals, legumes and certain varieties of cabbage<sup>(3,5,6)</sup>.

**MALTASE:** Maltase hydrolyses maltose into two glucose molecules and breaks down carbohydrates, malt, grains and simple sugars. It's present in the intestinal mucosa<sup>(1,6,7)</sup>.

**INVERTASE:** Invertase breaks down carbohydrates, especially sucrose<sup>(4,5)</sup>.

**PECTINASE:** Pectinase breaks down carbohydrates such as pectin found in many fruits and vegetables<sup>(4,6,7)</sup>.

**GLUCOAMYLASE:** Glucoamylase breaks down carbohydrates, especially glucose polysaccharides<sup>(4)</sup>.

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**HEMICELLULASE:** Hemicellulase is a mix of enzymes that can hydrolyse the non-digestible components of plant fibres. Given that humans do not possess the endogenous enzymes needed to digest plant fibres, supplementation provides humans an additional nutritional source and reduces the bulk forming effect of fibrous foods<sup>(1,3)</sup>.

**PHYTASE:** Phytase degrades phytic acid in cereals and legumes, improving mineral absorption. Its mechanism begins upon catalysing the hydrolysis of phytic acid, which is found in plant leaves. Given that humans do not possess endogenous phytase, its supplementation can release important mineral nutrients which would otherwise be lost in digestion. Scientific evidence suggests that enzymes such as phytase can be useful complements to digestive health and for general nutritional support<sup>(1,3,5,6)</sup>.

**BROMELAIN:** Bromelain divides nutritive proteins, and like papain, supports the effect of fungal proteolytic enzymes, relieving the inflammation associated with infection and physical injury. When there is a pepsin and/or trypsin deficiency, bromelain aids digestion, relieving symptoms of stomach discomfort or acidity, especially when used with other enzymes. It also helps maintain healthy blood vessels<sup>(1,4,7)</sup>.

**DIPEPTIDYL PEPTIDASE IV:** Dipeptidyl peptidase IV hydrolyses casein, gluten and other small peptides including casomorphins and gluteomorphins, which can negatively affect the central nervous system in some people<sup>(4,8)</sup>.

## References:

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