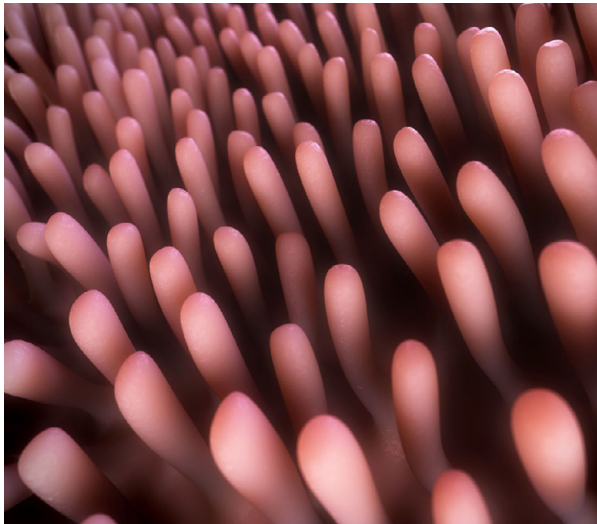


the essence for a more productive nutrition

amaril®: protection against oxidative stress

During digestion, oxygen free radicals that are released attack mucosal surfaces and interfere with the passage of nutrients, as they shorten the intestinal villi, thereby reducing the absorption surface area.



3D representation of the intestinal villi. The longer their length, the greater the absorption surface area.

The body defends itself from oxidative stress with the effect of certain enzymes that can attract these oxygen radicals, such as **catalase** and **superoxide dismutase**.

amaril®, thanks to **cinnamaldehyde**, enhances the antioxidant activity of these enzymes. Accelerates the renewal rate of mature enterocytes and increases the surface area of the intestinal villi. In addition, due to its protective action on the mucosa, **cinnamaldehyde** reduces pathogenic contamination.

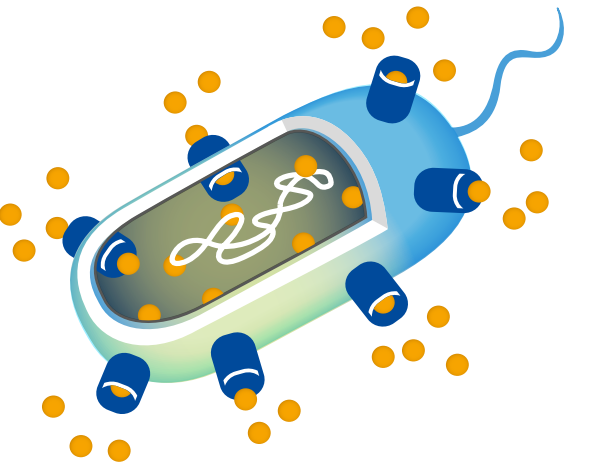
amaril®: a powerful antibacterial agent

Cinnamaldehyde has proven to be one of the essential oils with the highest antibacterial capacity (far greater than other phenolic oils such as carvacrol and thymol), with a very high inhibitory capacity especially against coliforms and salmonella. This anti-microbial capacity is **selective**; it promotes the growth of lactobacilli and lactic acid flora in general.

Combining cinnamaldehyde with formic acid results in a synergistic antibacterial effect far greater than the sum of the individual effects of each ingredient.

Cinnamaldehyde acts as a natural antibacterial agent, and in addition alters the permeability of the bacterial cell wall such that organic acid penetrates the bacterium, even in its **dissociated** form (chief form at pHs greater than pKa). This results in a significant increase in the antibacterial strength of the organic acid, and therefore a far greater than expected effect from **amaril®**.

Synergistic antibacterial effect



cinnamaldehyde

Alters cell permeability and creates bridges where the organic acid will penetrate, even in its dissociated form.

organic acid

Penetrates the pores created by cinnamaldehyde and, once inside the bacterium, will cause its death.

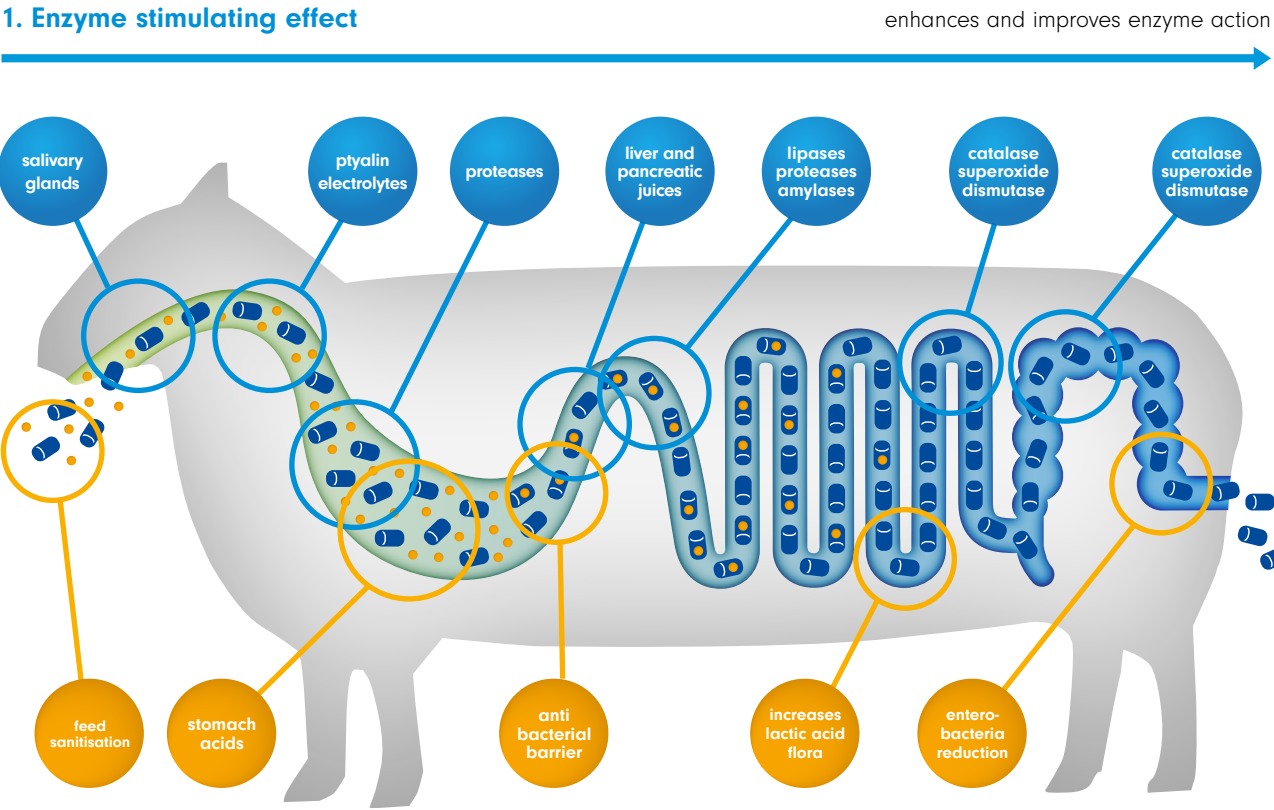
amaril® is an excellent production stimulant that also helps to decrease pathological problems



action of amaril® throughout the digestive tract

In addition to stimulating multiple enzymes, **amaril®** also achieves a sanitising effect in the animal that results in a decrease in pathological problems and as a result, **in increased production**.

1. Enzyme stimulating effect



2. Sanitising effect in the animal

