

## *Healthier Gut Means Better Performance*

- ▶ *Development and the integrity of the intestinal mucosa*
- ▶ *Improved digestive and absorptive capacities*
- ▶ *Immunoregulatory effect on intestinal epithelial cell*

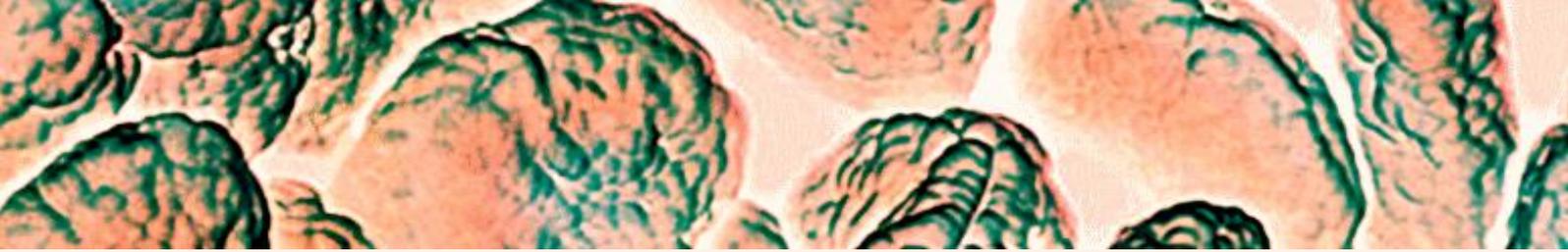


# *enttan*

*"Guts to perform"*

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## *What Is Butyrate?*

Butyrate is a salt of Butyric acid, one of the major short chain fatty acids (SCFA) that are responsible for growth, function and differentiation of intestinal epithelium. 70% of energy for the epithelial cells is supplied by butyrate. (G. Biagi et al, 2007)

## *Triple effect of Butyrate*

### **Trophic**

- Stimulation of enterocytes proliferation and maturation
- Increased villous height and crypt depth for better absorption

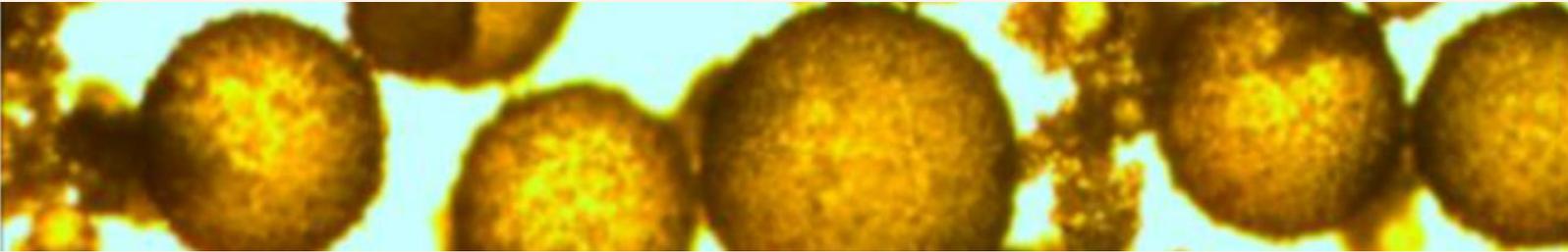
### **Imunomodulating**

- Anti-inflammatory effect
- Host defence peptides (HPDs) induction for enhanced disease resistance

### **Antibacterial**

- Selective inhibition of E.coli, Clostridia, Salmonella
- Demonstrated reduced lesion scores in birds infected with coccidiosis

***Healthier Gut = Better Performance***



## Microencapsulation for targeted release

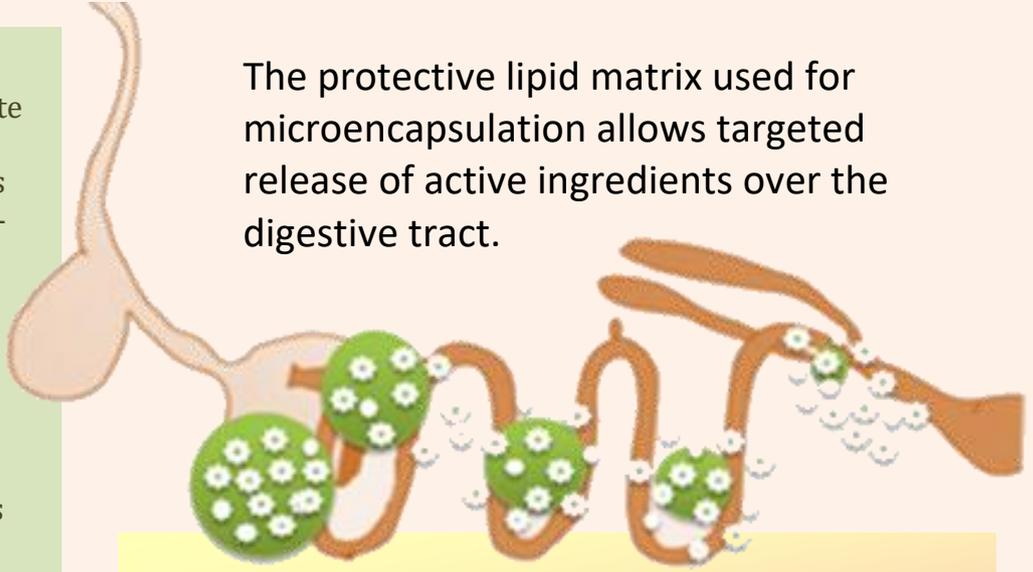
The addition of encapsulated calcium butyrate to broiler feed gives promising perspectives for optimizing the technical and economical results in broilers.

(V. Hautekiet, 2011)

Prewaning administration of butyrate to young piglets improves postweaning growth performance and feed conversion efficiency

(Le Gall et al, 2009)

The protective lipid matrix used for microencapsulation allows targeted release of active ingredients over the digestive tract.



Targeting butyrate into the small intestine thus improves digestive and absorptive capacities.

(R. Claus et al, 2006)

**entan CB50%**

microencapsulated 50%  
calcium butyrate

Vegetable oil and fat, No. 2.20.1

Calcium salt of butyric acid, No. 13.6.4

**entan CB60%**

microencapsulated 60%  
calcium butyrate

Vegetable oil and fat, No. 2.20.1

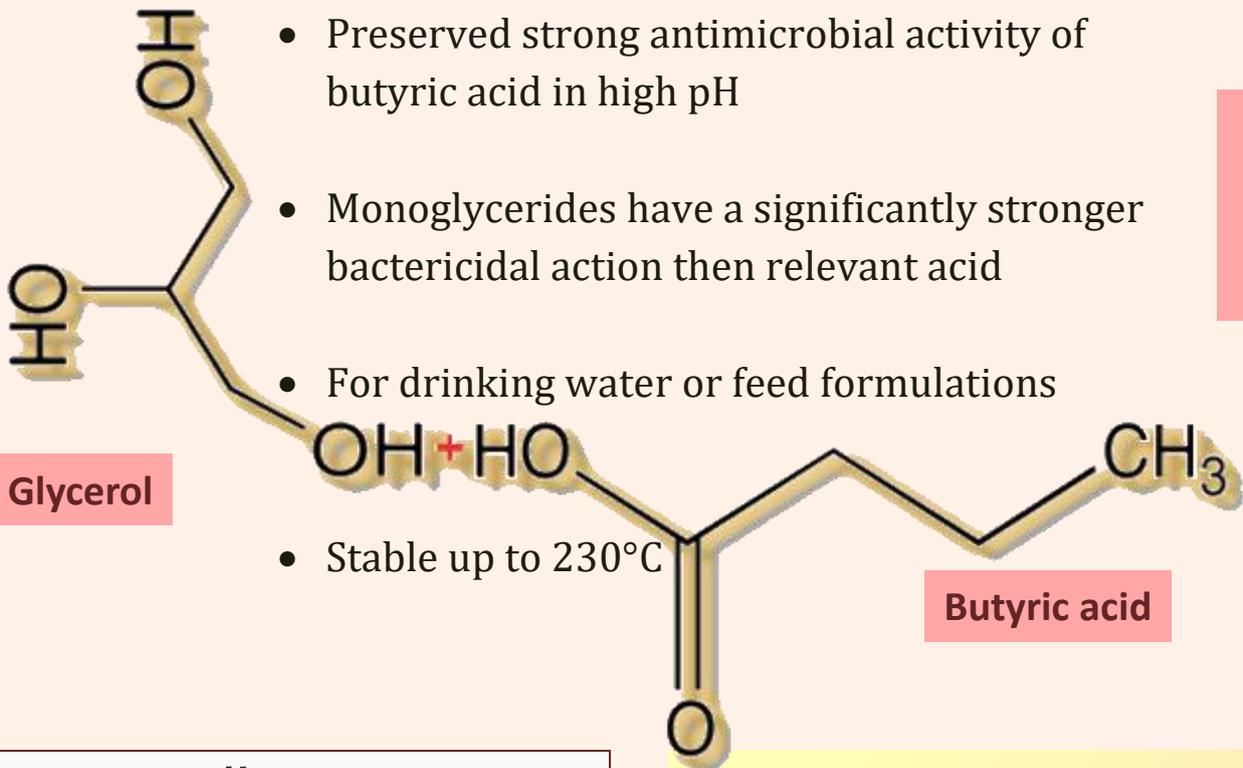
Sodium salt of butyric acid, No. 13.6.4



Micro-capsules, Entan CB, 20x magnification.

**Score the best performance with microencapsulated Calcium Butyrate products of the ENTAN family**

## Smart and sound with Monobutytrin



**entan ML**

A mixture of glycerides of butyric acid and glycerol.

Liquid form

**entan MP**

A mixture of glycerides of butyric acid and glycerol supported on silicon dioxide.

Powder form

### Can reduce or replace

- Antibiotic Growth Promoters (AGP)
- Enteric antibiotics like Colistin, Tylosin, Tiamulin, Lincomycin.
- Non-protected/protected organic acids
- Yeasts, probiotics, prebiotics
- Soybean oil, other vegetable oils, lard on 1 : 1 basis
- Essential oils
- Short – medium chain fatty acids

**Butyric acid antimicrobial performance at any pH with Monobutytrin products of the ENTAN family**