

1 INTRODUCTION

The use of probiotics is a prophylactic alternative to the use of antibiotics.

Probiotics may be defined as **living microorganism** colonies that, when supplemented in diet, benefit the host by modulating the intestinal microbiota in favor of non-pathogenic microorganisms.

2 OBJECTIVES

- ✓ Meet the difference between prebiotic and probiotic.
- ✓ Know the action mechanism and their applications in veterinary medicine.
- ✓ New challenges.

3 PREBIOTIC ≠ PROBIOTIC

Non-digestible carbohydrates such as pectin's, acetylates polysaccharides and methoxylates.

They are food for the probiotics.

The most used in animals are **Lactobacillus spp** and **Bacillus spp**. Also it can be used yeast such a **Saccharomyces spp**.

4 MECHANISMS of ACTION of PROBIOTICS

- 1) Enhancement of the epithelial barrier.
- 2) Increased adhesion to intestinal mucosa.
- 3) Inhibition of the pathogens adhesion.
- 4) Competitive exclusion of pathogenic microorganisms.
- 5) Production of anti-microorganisms substances.
- 6) Modulation of the immune system.

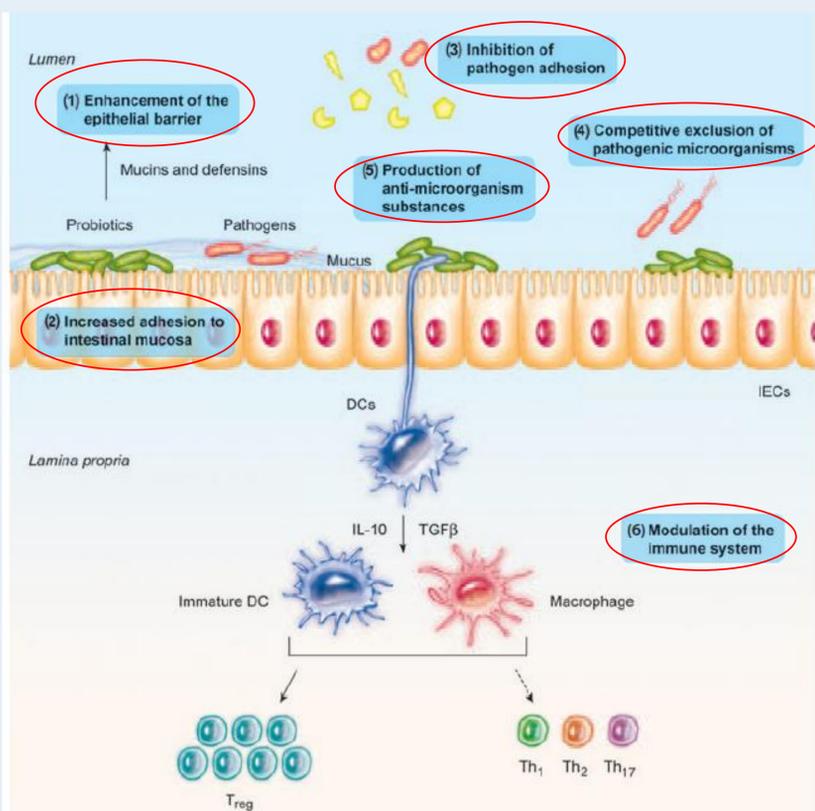


Fig 1. Major mechanisms of action of probiotics. Bermudez-Brito, et al 2012.

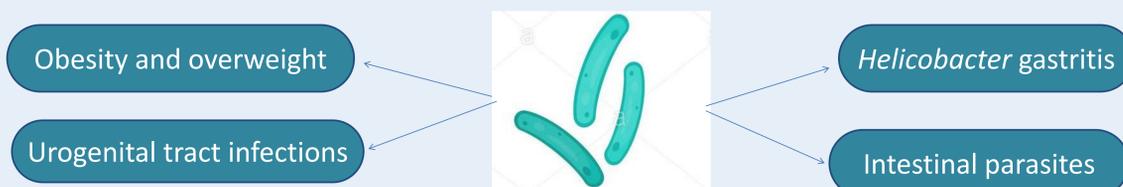
5 PROBIOTICS in CATS & DOGS

	<ul style="list-style-type: none"> ✓ The incidence of feline immunodeficiency virus infections was reduced. ✓ Treatment of acute and chronic enteropathy. ✓ Reduce the duration and recurrence of hemorrhagic gastroenteritis. 	<p><i>L. acidophilus</i></p> <p><i>B. subtilis</i></p> <p><i>E. faecium</i></p> <p><i>B. coagulans</i></p>
	<ul style="list-style-type: none"> ✓ Treat atopic dermatitis . ✓ Treatment the IBD. ✓ Improved vaccine response and growth rates in puppies. ✓ Chronic kidney disease. ✓ Acute pancreatitis 	<p><i>L. rhamnosus</i></p> <p><i>L. plantarum</i></p> <p><i>B. longum</i></p> <p><i>L. acidophilus</i></p>

6 PROBIOTICS in ANIMAL PRODUCTION

	<ul style="list-style-type: none"> ✓ Increase body weight gain. ✓ Reduce infections and diseases. ✓ Improve meat and egg quality. ✓ Improve egg production. ✓ Intestinal microflora modulation. ✓ Reduce toxin bioavailability. 	<p><i>L.plantarum</i></p> <p><i>L.johnsonni</i></p> <p><i>L.salivarius</i></p> <p><i>E.faecium</i></p>
	<ul style="list-style-type: none"> ✓ Increase body weight gain. ✓ Reduce infections and diseases. ✓ Improve meat, colostrums and milk quality. ✓ Improve gut microflora balance. ✓ Reduce toxin bioavailability. 	<p><i>L. mucosae</i></p> <p><i>L. plantarum</i></p> <p><i>L. paracasei</i></p> <p><i>B. thermoamylovorans</i></p>
	<ul style="list-style-type: none"> ✓ Increase body weight gain. ✓ Reduce infections. ✓ Improve milk and meat quality. ✓ Increase milk production. ✓ Reduce toxin bioavailability. 	<p><i>L.kunkeei</i></p> <p><i>L.apinorum</i></p> <p><i>L.mellis</i></p> <p><i>L.mellifer</i></p>
	<ul style="list-style-type: none"> ✓ Increase body weight gain. ✓ Reduce infections and diseases. ✓ Increase fish reproduction. ✓ Improve water quality. 	<p><i>L.strains</i></p> <p><i>L.murinus</i></p> <p><i>L.rhamnosus</i></p> <p><i>L.casei</i></p>

7 NEW CHALLENGES



8 CONCLUSIONS

- ✓ Probiotics modulate different response of the organism. Helping to treat some diseases or prevent them and improve the physiological conditions of the guest.
- ✓ Increasingly broad applications in veterinary medicine.
- ✓ More studies are needed to prove its effectiveness in some pathologies.