

ABELIA® TrisOtic



For Dogs, Cats
& Small mammals

Safe and Effective Otitis Management Helps Fight Antibiotic and Azole Resistance

Antimicrobial, alkalizing, chelating, and non-stinging otic solution for pets.
First line of defense against bacterial conditions that disrupt microorganism biofilm,
to prevent recurrence and to manage bacterial chronic conditions.

Introduction

Otitis externa is a common condition that affects 15-20% of dogs and 5-7% of cats. The development of otitis usually is due to a combination of different causes and factors. Primary causes can trigger otitis externa by themselves as they modify the ear environment creating ideal conditions for producing secondary infections. Secondary causes are those that produce disease in an abnormal or altered ear like bacterial and yeast infections, being the most significant ones.

Gram negative bacteria are the most frequently isolated bacteria in canine otitis. These types of bacteria are associated with chronic and persistent otitis, due to the low permeability of their cell wall. They are often more resistant to antibiotics, antiseptics and disinfectants, including chlorhexidine. *Pseudomonas aeruginosa* is one of the most common gram-negative bacteria. Other bacteria like *Proteus* spp, *E. coli* and *Klebsiella* spp are also frequently isolated.

Systemic antibiotics do not reach sufficiently high concentrations in the ear canal tissue. Therefore, the use of topical treatment is recommended as first choice. The choice of an antibiotic may often be complicated by the bacterial resistance. The use of advanced treatment options may be necessary to resolve the pathology.

ABELIA® TrisOtic is the first choice in complex bacterial otitis due to its broad spectrum antimicrobial activity, antibiotic potentiation, and safe use in the event of tympanic membrane perforation. Its advanced formula with Tromethamine, EDTA and Benzyl Alcohol, and the synergistic effect of its active ingredients facilitates the resolution of multi-resistant bacterial otitis and prevention of recurrence, by creating a hostile environment for proliferation. It also potentiates antibiotic effect, by alkalizing the ear canal environment.

| Active Ingredients | | | |
|--------------------|--------|----------------|--------|
| Tromethamine base | 0.60 % | EDTA | 0.12 % |
| Tromethamine HCl | 0.35 % | Benzyl alcohol | 0.30 % |

Also contains: Water, polysorbate-20.



118 ml / 4 fl. oz.



Safe for perforated
tympanic membrane

Characteristics

- pH 8 – Alkalizing – Chelating
- First line non-antibiotic therapy for non-complicated bacterial infections.
- Antibiotic and azole free:
 - Controls simple otitis without antibiotics, helping fight resistance.
 - Helps rationalize the use of antibiotics, preserving their efficacy.
- Synergistic effect:
 - **EDTA** – Chelating action:
 - Increases Gram negative bacterial membrane permeability.
 - Increases bacterial antibiotic sensitivity.
 - **Tromethamine** – Alkaline buffer:
 - Potentiates antibiotic action.
 - Potentiates the chelating action of EDTA.
 - **Benzyl Alcohol** – Usually used as a preservative due to its antiseptic activity against Gram positive and Gram negative bacteria.
- Scent free, non-staining and non-sticking formula.
- Safe:
 - Very low incidence of post-application discomfort.
 - Non-Ototoxic – Safe for use with perforated tympanic membrane.
 - Safe for frequent and long-term use and maintenance.
- Aqueous base:
 - Good distribution, even in stenotic or narrowed ear canals.
 - Does not create plugs in hairy animals.
- Does not stain fur, dog beds or furniture.

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Mechanism of Action

- **EDTA (Ethylenediaminetetraacetic Acid)** binds with metallic ions forming complexes that precipitate as chelate. In contact with the cell wall of Gram - bacteria, EDTA is a chelator of divalent cations such as [Ca++ and Mg++], which provokes the release of lipopolysaccharides from its structure, leaving it more permeable. This reaction weakens the cell wall of the bacteria allowing antibiotics and antiseptics better penetration and, as a result, increases the sensitivity of these bacteria to antibiotics. In addition, EDTA blocks the so-called efflux mechanisms or efflux pumps in *Pseudomonas* that make them particularly resistant to antibiotics and antiseptics.
- **Tromethamine** is an alkaline buffer that potentiates the chelating action of EDTA and therefore its antibiotic efficacy. It counteracts the acidity of the exudate produced in otitis externa, which contributes to reducing antibiotic efficacy.
- The **association of Tromethamine and EDTA (Tris-EDTA)** has been proven to inhibit the growth of *Pseudomonas aeruginosa* in vitro⁴ and in vivo⁵, to potentiate the action of some antibiotics against *Pseudomonas aeruginosa* in vitro⁶ and in vivo⁷ and to reduce the minimum inhibitory concentration (MIC) of enrofloxacin against ciprofloxacin resistant *Pseudomonas aeruginosa*⁸. TrisEDTA has been seen to significantly increase the efficacy of marbofloxacin and gentamicin against multi-resistant strains of *Pseudomonas aeruginosa* in vitro, reducing the minimum bactericidal concentration and minimum inhibitory concentration¹.
- **Benzyl Alcohol** is usually used as a preservative due to its antiseptic activity against Gram + and Gram - bacteria, avoiding possible contamination of ABELIA® TrisOtic when used repeatedly in infected ears. It also possesses mild local anesthetic activity¹.

Recommended Use

- For maintenance/preventative treatment of ear canals with chronic bacterial otitis.
- For first line of treatment of non-complicated bacterial otitis.
- For support therapy for complicated otitis - Favors action of treatments that require an alkaline pH.
- Controls microorganisms by creating a hostile environment for their development.
- Can be used as a base for different formulas according to individual needs.

Directions for Use

Apply as needed to fill ear canal. Gently massage base of ear to loosen wax and debris. Wipe away excess with soft absorbent material.

- **For initial otitis**, apply once or twice a day, 15 to 30 minutes before application of treatment specific to ear canal condition.
- **For maintenance**, apply once or twice a week as needed.



Cautions: Do not use in eyes.

Efficacy Studies

1. Buckley L., McEwan N., Nuttall T. Tris-EDTA significantly enhances antibiotic efficacy against multidrug-resistant *Pseudomonas aeruginosa* in vitro. *Vet Derm* 2013, 24:519-e122.
2. Buckley L., McEwan N., Nuttall T. Tris-EDTA significantly reduced the MBCs and MICs of marbofloxacin and gentamicin for multidrug-resistant *P. aeruginosa* in vitro. *Vet Dermatol* 2013;24(5).
3. Banin E., Brady K., Greenberg E. Chelator-Induced Dispersal and Killing of *Pseudomonas aeruginosa* Cells in a Biofilm. *Applied and Environmental Microbiology*, 2006. 72(3).
4. Cole L. et al. In vitro activity of an ear rinse containing tromethamine, EDTA, and benzyl alcohol on bacterial pathogens from dogs with otitis. *Am J Vet Res*. 2006; 67(6).
5. Blue JL, Wooley RE, Eagon RG. Treatment of experimentally induced *Pseudomonas aeruginosa* otitis externa in the dog by lavage with EDTA-tromethamine-lysozyme. *Am J Vet Res* 1974; 35: 1221-1223.
6. Brown MRW, Richards RM. Effect of ethylenediamine tetraacetate on resistance of *Pseudomonas aeruginosa* to antibacterial agents. *Nature* 1965; 207:1391-1393.
7. Farca AM, Piroccoli G, Maffei F et al. Potentiating effect of EDTA-Tris on the activity of antibiotics against resistant bacteria associated with otitis, dermatitis and cystitis. *J Small Anim Pract* 1997; 38:243-245.
8. Gbadamosis S, Gottthelf LN. Evaluation of the in vitro effect of Tris-EDTA on the minimum inhibitory concentration of enrofloxacin against ciprofloxacin resistant *Pseudomonas aeruginosa*. *Vet Dermatol* 2003; 14:222 [Abstract].