Antimicrobial, Astringent, Cerumenolytic, Keratolytic, Lipolytic, Non-Irritating and Replenishing Otic Solution for Dogs, Cats and Horses

#### Composition:

Boric Acid2%Glycolic Acid2%Ceramides

#### Properties and Mechanism of Action:

**ABELIA® GlycoZoo** is an aqueous otic solution composed of Boric Acid, Glycolic Acid and Ceramides, with antimicrobial, cerumenolytic, keratolytic, lipolytic, astringent, non-irritating and replenishing action for dogs, cats and horses. Its combination of active ingredients, with synergistic effect, makes it particularly effective in the treatment of *Malassezia* and preventing recurrences. It also improves keratinization disorders such as seborrhoea, often associated with these pathologies, and promotes the regene-

ration of damaged epithelium, accelerating the cell renewal process. This replenishing effect promotes the healing of otitis and hinders relapse. Its Ceramide content helps the epithelium to maintain its integrity, improving the protective function.

- Boric Acid has an astrigent, effect, a characteristic that makes it particularly useful when the ear canal is wet. It has also shown to be effective against *Malassezia* infections. One study concluded that Boric Acid was as effective as topical antibiotics in the treatment of human otitis externa (R.W. Slack, 1987); in another study, 95% of fungal vaginal infections in humans were eliminated with Boric Acid vaginal suppositories (T. Swate et J. Weed, 1974). *In vitro* and *in vivo* studies in dogs prove its efficiency against the most common ear pathogens: *Malassezia* spp, *Staphylococcus intermedius, Pseudomonas aeruginosa*, etc. (C.E. Benson, 1998; L.N. Gotthelf et S.E. Young, 1997; R.J. Bassett et al, 2004). The mechanism of action of Boric Acid is not well known; it has been suggested that Boric Acid may inhibit the metabolic activity of fungi.
- Glycolic Acid is an Alpha Hydroxy Acid (AHA) with a very small molecular chain, allowing it to easily
  penetrate to the deepest layers of the skin. Widely used in human dermatology as an exfoliant and
  rejuvenator due to its keratolytic and lipolytic effect. Its exfoliating effect promotes the shedding of the
  more superficial epidermal cells, promoting cell renewal and, as a result, normal keratinization and
  hydration of the skin. Furthermore, the exfoliating action as it eliminates the layer of dead cells gives the
  active ingredients better contact with the such and, therefore, greater efficiency. Should the product be
  taken in combination with antibiotics, such effect will benefit contact with the epithelium and, as a result,
  enhance its effect. Various studies in people have shown that it significantly improves the condition of
  skin with pathologies such as acne and hyperpigmentation.
- Ceramides are complex sphingolipids found in the stratum corneum of the skin. Their function is to join the cells (corneocytes) together. Their presence helps maintain the barrier effect, repel attacks and prevent microorganisms and allergens from penetrating the skin. They promote the regeneration and repair of the skin and help it recover its natural moisture. Good ceramide levels are essential to maintain the skin in optimal conditions. Skin that is deficient in ceramides may produce symptoms including keratinization and loss of moisture.

#### Indications:

- Treatment of otitis, particularly those in which the principal agent is Malassezia.
- Long term prevention of recurrent chronic otitis
- Helps in the treatment of complicated otitis. The cerumenolytic action of ABELIA® GlycoZoo prepares the ear canal to maximize the efficacy of topical treatment. Its antibacterial and antifungal action also reinforce the antimicrobial action of topical treatment.







### **Data Sheet**

Treatment of choice for *Malassezia* otitis and otitis that occur with keratinization disorders like seborrhoea.



#### **Features**

Effective in the treatment and prevention of *Malassezia* otitis.

Indicated for the treatment of otitis that presents with keratinization disorders such as seborrhoea, due to its lipolytic and keratolytic effect.

Exfoliant action – Promotes renewal of epithelial cells of the ear canal.

Contains ceramides, essential for regenerating the epithelium and maintaining its integrity, hydration and protective function.

Eliminates dead cells giving the active ingredients better contact with the epithelium.

Very low incidence of postapplication stinging.

Powerful drying action of the ear canal.

High cerumenolytic power.



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- Treatment of otic pathologies that occur with seborrhoea and/or keratinization disorders.
- Repair and protection of the epithelium of the ear canal when flaking or other signs of dehydration or irritation occur...
- · Ears with perforated tympanic membrane (or suspected perforation).
- Preventive drying of the ear canal (e.g. swimming dogs).
- · Malodorous ears.

Target Species: Dogs, cats and horses.

#### **Directions of Use:**

Treatment:

- Apply ABELIA® GlycoZoo carefully until the ear canal is full (1 to 5 ml depending on the breed).
- Softly massage the base of the ear for a few seconds.
- Remove excess solution with gauze or a paper towel.
- Repeat every12-24hours.
- Ears should be checked by your vet every 7 to 10 days.

Maintenance/Prevention: apply 1-2 times a week.

**Safety:** Do not use ABELIA® GlycoZoo if the ear or skin is seriously irritated or ulcerated. Does not cause ototoxicity even when the tympanic membrane is perforated. ABELIA® GlycoZoo does not contain antibiotics or corticoids so does not build up resistance, nor is there any risk of dermic or systemic side effects, even when used over prolonged periods.

**Warnings:** Keep the container tightly closed, in a cool, dry place, protected from direct sunlight and out of reach and sight of children and animals.

#### Presentation: 118 ml.

#### **Bibliography:**

- Atzori L, et. al. Glycolic acid peeling in the treatment of acne. J Eur Acad Dermatol Venereol. 1999.
- Bassett RJ, Burton GG, Robson DC, Hepworth G. Efficacy of an acetic acid and boric acid ear cleaning solution for the treatment and prophylaxis of Malassezia sp. Otitis Externa. Aust Vet Practit 2004 Jun;34(2):79-82
- Becker FF, et. al. A histological comparison of 50% and 70% glycolic acid peels using solutions with various pHs. Dermatol Surg. 1996.
- Benderdour M, Bui-Van T, Dicko A, Belleville F. In vivo and in vitro effects of boron and boronated compounds. J Trace Elem Med Biol 1998;12(1):2-7.
- Bennett A, Rowe RI, Soch N, Eckhert CD. Boron stimulates yeast (Saccharomyces cerevisiae) growth. J Nut 1999;129(12):2236-2238.
- Benson CE. Susceptibility of selected otitis externa pathogens to individual and mixtures of acetic and boric acids. Proc Annu Am Acad Vet Derm/Am Coll Vet Derm 1998;14:121.
- Bernstein EF, et. al. Glycolic acid treatment increases type I collagen mRNA and hyaluronic acid content of human skin. Dermatol Surg. 2001.
- Bertin C, et. al. Combined retinol-lactose-glycolic acid effects on photoaged skin: a double-blind placebo-controlled study. Int J Cosmet Sci. 2008.
- Bloom P. A practical approach to diagnosing and managing ear disease in dogs. Compend Contin Educ Vet 2009 May;31(5):E1-5.



Does not contain antibiotics or corticoids – Does not build up resistance or cause dermic or systemic side effects.

Effective and very safe – Ideal for prolonged treatments.

Non ototoxic – Safe to use in cases of perforated tympanic membrane.

Does not interfere with allergy tests.

Aqueous, colourless solution – Does not stain surfaces or fabrics in the home.

Dogs, Cats and Horses.



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- Burns RL, et. al. Glycolic acid peels for postinflammatory hyperpigmentation in black patients. A comparative study. Dermatol Surg. 1997.
- Clark D. Managing otitis. Banfield Publication 2005.
- Clark E, Scerri L. Superficial and medium-depth chemical peels. Clin Dermatol. 2008.
- Clarke DE. Clinical and microbiological effects of oral zinc ascorbate gel in cats. J Vet Dent 2001;18:177-83.
- Cole LK. Diagnosing ear disease: which tests to use and when to use them. Western Veterinary Conference 2013.
- Cole LK. Topical and systemic medications for otitis externa & otitis media. Western Veterinary Conference, 2013.
- Cole LK, Kowchka KW, Kowalski JJ, et al. Microbial flora and antimicrobial susceptibility patterns of isolated pathogens from the horizontal ear canal and middle ear in dogs with otitis media. J Am Vet Med Assoc 1998;212:534-538.
- De Seta F, Schmidt M, Vu B, Essmann M, Larsen B. Antifungal mechanisms supporting boric acid therapy of Candida vaginitis. J Antim Chemo 2009;63(2):325–336.
- Draelos ZD, et. al. Evaluation of a kojic acid, emblica extract, and glycolic acid formulation compared with hydroquinone 4% for skin lightening. Cutis. 2010.
- Erbağci Z, Akçali C. Biweekly serial glycolic acid peels vs. long-term daily use of topical low-strength glycolic acid in the treatment of atrophic acne scars. Int J Dermatol. 2000.
- Fabbrocini G, De Padova MP, Tosti A. Chemical peels: what's new and what isn't new but still works well. Facial Plast Surg. 2009.
- Faghihi G, Shahingohar A, Siadat AH. Comparison between 1% tretinoin peeling versus 70% glycolic acid peeling in the treatment of female patients with melasma. J Drugs Dermatol. 2011.
- Fleischer A, Titel C, Ehwald R. The boron requirement and cell wall properties of growing and stationary suspension-cultured Chenopodium album L cells. Plant Physiol 1998;117(4):1401-1410.
- Fournier N, Fritz K, Mordon S. Use of nonthermal blue (405- to 420-nm) and near-infrared light (850- to 900-nm) dual-wavelength system in combination with glycolic acid peels and topical vitamin C for skin photorejuvenation. Dermatol Surg. 2006.
- Fuchs KO, et. al. The effects of an estrogen and glycolic acid cream on the facial skin of postmenopausal women: a randomized histologic study. Cutis. 2003.
- Funasaka Y, et. al. The efficacy of glycolic acid for treating wrinkles: analysis using newly developed facial imaging systems equipped with fluorescent illumination. J Dermatol Sci. 2001.
- Garcia A, Fulton JE Jr. The combination of glycolic acid and hydroquinone or kojic acid for the treatment of melasma and related conditions. Dermatol Surg. 1996.
- Garg VK, Sarkar R, Agarwal R. Comparative evaluation of beneficiary effects of priming agents (2% hydroquinone and 0.025% retinoic acid) in the treatment of melasma with glycolic acid peels. Dermatol Surg. 2008.
- Ginel PJ, Lucena R, Rodriguez JC, et al. A semiquantitative cytological evaluation of normal and pathological samples from the external ear canal of dogs and cats. Vet Derm 2002;13:151-156.
- · Gotthelf LN. Ear Flushing and Treatment of Otitis Externa. NAVC Proceedings 2005.
- Gotthelf LN. Topical Treatment of Otitis Media. NAVC Proceedings 2005.
- Gotthelf LN, Young SE. New treatment of Malassezia otitis externa in dogs. Vet Forum 1997;14:46-53.
- Griffin C. Pseudomonas Otitis Lecture. 31st WSAVA Congress, Prague 2006.
- Grover C, Reddu BS. The therapeutic value of glycolic acid peels in dermatology. Indian J Dermatol Venereol Leprol. 2003.
- Hantash BM, Jimenez F. A split-face, double-blind, randomized and placebo-controlled pilot evaluation of a novel oligopeptide for the treatment of recalcitrant melasma. J Drugs Dermatol. 2009.
- Hantash BM, Jimenez F. Treatment of mild to moderate facial melasma with the Lumixyl topical brightening system. J Drugs Dermatol. 2012.
- Javaheri SM, et. al. Safety and efficacy of glycolic acid facial peel in Indian women with melasma. Int J Dermatol. 2001.
- Jiang M, Qureshi SA. Assessment of in vitro percutaneous absorption of glycolic acid through human skin sections using a flow-through diffusion cell system. J Dermatol Sci. 1998.
- Kaidbey K, et. al. Topical glycolic acid enhances photodamage by ultraviolet light. Photodermatol Photoimmunol Photomed. 2003.
- Kempiak SJ, Uebelhoer N. Superficial chemical peels and microdermabrasion for acne vulgaris. Semin Cutan Med Surg. 2008.
- Kessler E, et. al. Comparison of alpha- and beta-hydroxy acid chemical peels in the treatment of mild to moderately severe facial acne vulgaris. Dermatol Surg. 2008.
- · Khunger N, Sarkar R, Jain RK. Tretinoin peels versus glycolic acid peels in the treatment of Melasma in dark-skin-



## Data Sheet





Antimicrobial, Astringent, Cerumenolytic, Keratolytic, Lipolytic, Non-Irritating and Replenishing Otic Solution for Dogs, Cats and Horses

ned patients.Dermatol Surg. 2004.

- Kim SJ, Won YH. The effect of glycolic acid on cultured human skin fibroblasts: cell proliferative effect and increased collagen synthesis. J Dermatol. 1998.
- Kim SJ, et. al. Increased in vivo collagen synthesis and in vitro cell proliferative effect of glycolic acid. Dermatol Surg. 1998.
- Kim SW, et. al. Glycolic acid versus Jessner's solution: which is better for facial acne patients? A randomized prospective clinical trial of split-face model therapy. Dermatol Surg. 1999.
- Kornhauser A, et. al. The effects of topically applied glycolic acid and salicylic acid on ultraviolet radiation-induced erythema, DNA damage and sunburn cell formation in human skin. J Dermatol Sci. 2009.
- Kumari R, Thappa DM. Comparative study of trichloroacetic acid versus glycolic acid chemical peels in the treatment of melasma.Indian J Dermatol Venereol Leprol. 2010.
- Landau M. Chemical peels. Clin Dermatol. 2008.
- Lim JT. Treatment of melasma using kojic acid in a gel containing hydroquinone and glycolic acid. Dermatol Surg. 1999.
- · Lim JT, Tham SN. Glycolic acid peels in the treatment of melasma among Asian women. Dermatol Surg. 1997.
- Males RG, Herring FG. A 1H-NMR study of the permeation of glycolic acid through phospholipid membranes. Biochim Biophys Acta.1999.
- Marrero GM, Katz BE. The new fluor-hydroxy pulse peel. A combination of 5-fluorouracil and glycolic acid. Dermatol Surg. 1998.
- Matousek JL, Campbell KL, Kakoma I. The effects of four acidifying sprays, vinegar, and water on canine cutaneous pH levels. J Am Anim Hosp Assoc 2003;39:29-33.
- McCarthy TJ, Zeelie JJ, Krause DJ. The antimicrobial action of zinc ion/antioxidant combinations. J Clin Pharm Ther 1992;17:51-54.
- McElroy BH, Miller SP. Effectiveness of zinc gluconate glycine lozenges (Cold-eeze) against the common cold in school-aged subjects: a retrospective chart review. Am J Ther 2002;9:472-475.
- Mendelsohn CL, Griffin CE, Rosenkrantz WS, Brown LD, Boord MJ. Efficacy of boric-complexed zinc and acetic-complexed zinc otic preparations for canine yeast otitis externa. J Am Anim Hosp Assoc 2005 Jan-Feb;41(1):12-21.
- Merchant SR. Medically managing chronic otitis externa and media. Vet Med 1997;92:518-534.
- Morreale M, Livrea MA. Synergistic effect of glycolic acid on the antioxidant activity of alpha-tocopherol and melatonin in lipid bilayers and in human skin homogenates. Biochem Mol Biol Int. 1997.
- Moy LS, Howe K, Moy RL. Glycolic acid modulation of collagen production in human skin fibroblast cultures in vitro. Dermatol Surg. 1996.
- Moy LS, Murad H, Moy RL. Glycolic acid peels for the treatment of wrinkles and photoaging. J Dermatol Surg Oncol. 1993.
- Murad H, Shamban AT, Premo PS. The use of glycolic acid as a peeling agent. Dermatol Clin. 1995.
- National Toxicology Program. Photocarcinogenesis study of glycolic acid and salicylic acid (CAS Nos. 79-14-1 and 69-72-7) in SKH-1 mice (simulated solar light and topical application study). Natl Toxicol Program Tech Rep Ser. 2007.
- Newman N, et. al. Clinical improvement of photoaged skin with 50% glycolic acid. A double-blind vehicle-controlled study. Dermatol Surg. 1996.
- Olivry T, Dunston SM, Rivierre C, et al. A randomized controlled trial of misoprostol monotherapy for canine atopic dermatitis: effects on dermal cellularity and cutaneous tumor necrosis factor-alpha. Vet Derm 2003;14:37-46.
- Oresajo C, Yatskayer M, Hansenne I. Clinical tolerance and efficacy of capryloyl salicylic acid peel compared to a glycolic acid peel in subjects with fine lines/wrinkles and hyperpigmented skin. J Cosmet Dermatol. 2008.
- Osguthorpe JD, Nielsen DR. Otitis externa: Review and clinical update. Am Fam Physician 2006 Nov 1;74(9):1510-6.
- Park KY, et. al. A randomized, observer-blinded, comparison of combined 1064-nm Q-switched neodymium-doped yttrium-aluminium-garnet laser plus 30% glycolic acid peel vs. laser monotherapy to treat melasma. Clin Exp Dermatol. 2011.
- Park KS, et. al. Effect of glycolic acid on UVB-induced skin damage and inflammation in guinea pigs. Skin Pharmacol Appl Skin Physiol. 2002.
- Paterson S. Pseudomonas Otitis. NAVC's Clinician's Brief 2012.
- Perić S, et. al. Side effects assessment in glicolyc acid peelings in patients with acne type I. Bosn J Basic Med Sci. 2011.
- Plant JD. Management of Otitis Externa. Banfield Publication 2009.









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- Plant JD. The Challenges of Otitis Media. Banfield Publication 2009.
- Petrova E, Nachev Ch, Aleksiev N. [Zinc aspartate treatment of pneumoconiosis]. Med Tr Prom Ekol 1997;(10):33-6.
- Piacquadio D, et. al. Short contact 70% glycolic acid peels as a treatment for photodamaged skin. A pilot study. Dermatol Surg. 1996.
- Piérard GE, Henry F, Piérard-Franchimont C. Comparative effect of short-term topical tretinoin and glycolic acid on mechanical properties of photodamaged facial skin in HRT-treated menopausal women. Maturitas. 1996.
- Prestes PS, de Oliveira MM, Leonardi GR. Randomized clinical efficacy of superficial peeling with 85% lactic acid versus 70% glycolic acid. An Bras Dermatol. 2013.
- Prutting SM, Cerveny JD. Boric acid vaginal suppositories: a brief review. Infect Disea Obstet and Gynecol 1998;6(4):191-194.
- Puri N. Comparative study of 15% TCA peel versus 35% glycolic acid peel for the treatment of melasma. Indian Dermatol Online J. 2012.
- Ramírez SP, et. al. Open-label evaluation of a novel skin brightening system containing 0.01% decapeptide-12 in combination with 20% buffered glycolic acid for the treatment of mild to moderate facial melasma. J Drugs Dermatol. 2013.
- Sams RL 2nd, et. al. Effects of alpha- and beta-hydroxy acids on the edemal response induced in female SKH-1 mice by simulated solar light. Toxicol Appl Pharmacol. 2002.
- Sarkar R, et. al. The combination of glycolic acid peels with a topical regimen in the treatment of melasma in dark-skinned patients: a comparative study. Dermatol Surg. 2002.
- Scott DW, Miller WH, Griffin CE. Diseases of eyelids, claws, anal sacs and ears. Muller & Kirk's Small Animal Dermatology. 6th ed. Philadelphia: WB Saunders, 2001:1203-1232. 12.
- Sharad J. Glycolic acid peel therapy a current review. Clin Cosmet Investig Dermatol. 2013.
- Sharad J. Combination of microneedling and glycolic acid peels for the treatment of acne scars in dark skin. J Cosmet Dermatol. 2011.
- Sheiner LB, Rubin DB. Intention-to-treat analysis and the goals of clinical trials. Clin Pharmacol Ther 1995;57(1):6-15.
- Sheiner LB. Is intent-to-treat analysis always (ever) enough? Brit J Clin Pharmacol 2000;54:203-211.
- Siegel E, Wason S. Boric acid toxicity. Pediat Clin North Am 1986;33(2):363-367.
- Silverman NS, Morgan M, Nichols WS. Candida lusitaniae as an unusual cause of recurrent vaginitis and its successful treatment with intravaginal boric acid. Infect Dis Obstet Gynecol 2001;9(4):245-7.
- Smith WP. Comparative effectiveness of alpha-hydroxy acids on skin properties. Int J Cosmet Sci. 1996.
- Stiller MJ, et. al. Topical 8% glycolic acid and 8% L-lactic acid creams for the treatment of photodamaged skin. A double-blind vehicle-controlled clinical trial. Arch Dermatol. 1996.
- Thibault PK, Wlodarczyk J, Wenck A. A double-blind randomized clinical trial on the effectiveness of a daily glycolic acid 5% formulation in the treatment of photoaging. Dermatol Surg. 1998.
- Tse Y, et. al. A clinical and histologic evaluation of two medium-depth peels. Glycolic acid versus Jessner's trichloroacetic acid.Dermatol Surg. 1996.
- Usuki A, et. al. The inhibitory effect of glycolic acid and lactic acid on melanin synthesis in melanoma cells. Exp Dermatol. 2003.
- Wang CM, et. al. The effect of glycolic acid on the treatment of acne in Asian skin. Dermatol Surg. 1997.
- White PD. Medical management of chronic otitis in dogs. Compend Contin Educ Pract Vet 1999;21:716-728.
- Yamamoto Y, et. al. Effects of alpha-hydroxy acids on the human skin of Japanese subjects: the rationale for chemical peeling. J Dermatol. 2006.

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