

WORESANA®rye

ПОДДЕРЖКА МИКРОБИОМА КОЖИ / УСИЛЕНИЕ БАРЬЕРНОЙ ФУНКЦИИ

ПРЕДПОСЫЛКИ

Ингредиенты серии WORESANA®rye выполняют множество различных функций, оказывая эффективное, безопасное и универсальное лечебное действие.

Среди конечных потребителей наблюдается постоянно растущий спрос на продукты, поддерживающие микробиом.

Механизм действия основан на сочетании и взаимодействии совокупности индивидуальных эффектов.

General

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- EPS (Extracellular Polymeric Substances) are natural polymers of high molecular weight secreted by microorganisms into their environment. EPS establish the functional and structural integrity of biofilms and are considered the fundamental components that determine the physiochemical properties of a biofilm. The EPS layer acts as a nutrient trap, facilitating bacterial growth. Extracellular polymeric substances (EPS) serve as a biopolymer to protect cells from external environment and serve as energy and carbon sources for food deprived cells.
- Cutaneous pH plays an important role in the barrier function; it varies from acidic pH 3.0 to almost neutral pH 6.5. Two key cutaneous lipid-processing enzymes, β -glucocerebrosidase and **acidic sphingomyelinase** (aSMase), which generate a family of **ceramides** from glucosylceramide and sphingomyelin (SM), respectively, exhibit low pH optima. Elevations of SC pH are accompanied by perturbed cutaneous permeability barrier, Probiotics and its metabolites maintains the pH towards acidic side (Cinque et al., 2011). Cutaneous pH can control bacterial populations on skin surface affecting resident microbiota and can regulate epidermal permeability barrier homeostasis and stratum corneum (SC) integrity (Cinque et al., 2011). (Gueniche et al., 2010a, 2010b) have shown that extracts of lactic acid bacteria may accelerate the recovery of skin barrier function.
- Increased **laminin A/B** levels shown for *Lactobacillus reuteri* application may also contribute to a better skin barrier (Khmaladze et al., 2019). Additional benefits come from increased ceramide production as shown for *Streptococcus thermophilus* (Di Marzio et al., 1999) that produces **sphingomyelinase** thus increasing ceramide production. (Muizzuddin et al., 2012) showed that application of *Lactobacillus* extracts could reduce skin erythema, repair skin barrier thereby exhibiting an effective support in restoring barrier function.
- **Lipoteichoic acids** and **peptidoglycan** are structural components of the cell walls of Gram-positive bacteria and plays a vital role in the growth and physiology of the bacteria. There is increasing evidence that bacterial compounds such as cell wall fragments, their metabolites and dead bacteria can elicit certain immune responses on the skin and improve skin's barrier function. Cell-free cultures of lactic acid bacteria with probiotic potentials have been demonstrated to exert antimicrobial and immunomodulatory activities, suggesting the use of probiotic in nonviable forms (Iordache et al. 2012).
- **Collagen** in skin accounts for a high proportion of the skin's elasticity and physical properties. Lieurey and Watkins (2008) patented the use of a fermented milk product comprising non hydrolysed and casein-free whey proteins which improves skin firmness when topically applied to skin. The milk fermented with classic lactic acid bacteria (*S. thermophilus* and *L. bulgaricus*) could improve the structuring of skin's collagen without promoting collagen synthesis.

Преимущества WORESANA®rye

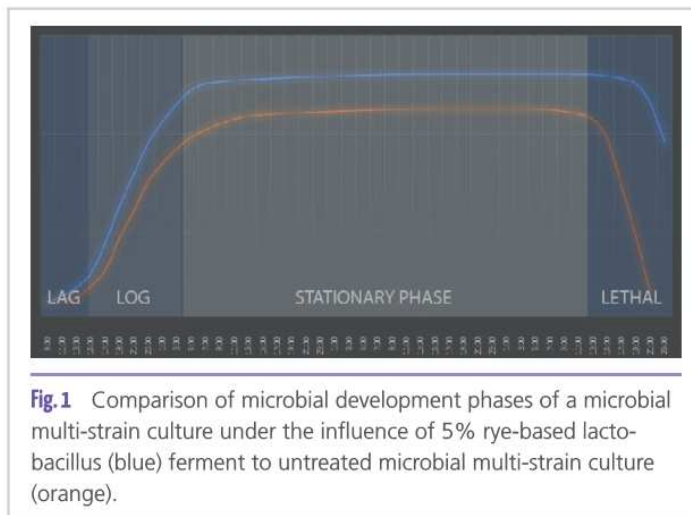
ПОДДЕРЖКА МИКРОБИОМА КОЖИ / УСИЛЕНИЕ БАРЬЕРНОЙ ФУНКЦИИ

- An inhouse test showed that the addition of 5% WORESANA had a positive effect on each of the four phases of the microbial development. This microbial process always takes place in the microbiota as well.

A phase of settlement and environmental conditioning (LAG) is followed by an exponential growing / multiplication of microorganisms (LOG). The third phase is characterized by the onset of interaction between the different microorganisms in order to maintain the balance (STATIONARY PHASE).

A balance of Commensalism, Competition, Predation, Cooperation, Amensalism or no interaction. This balance does avoid any excessive growth of a single bacterial or fungal participant. Excessive single strain overgrowth is the main feature of many skin related disease (acne/eczema/dandruff/athlete foot/dermatitis).

The last phase (lethal phase) is characterized by increasing food shortages that does lead to death of the organisms and destabilization of the microbial ecosystem.



Adding the WORESANA® showed significant improvements in first three development phases. Faster Attachment and environmental conditioning. A stronger and longer exponential growing. A more stable, longer stationary phase at a higher-level of microbial activity.

Transferred to the skin, this means a more stable, stronger and more diverse germ colonization. Less susceptible to improper colonization and the resulting diseases

- Borda, L.J., and Wikramanayake, T.C. (2015). Seborrheic Dermatitis and Dandruff: A Comprehensive Review. *J Clin Investig Dermatol* 3.
- Burke, K.E. (2018). Mechanisms of aging and development-A new understanding of environmental damage to the skin and prevention with topical antioxidants. *Mech. Ageing Dev.* 172, 123–130.
- Cinque, B., La Torre, C., Melchiorre, E., Marchesani, G., Zoccali, G., Palumbo, P., Di Marzio, L., Masci, A., Mosca, L., Mastromarino, P., et al. (2011). Use of Probiotics for Dermal Applications. In *Probiotics: Biology, Genetics and Health Aspects*, M.-T. Liong, ed. (Berlin, Heidelberg: Springer), pp. 221–241.
- Di Marzio, L., Cinque, B., De Simone, C., and Cifone, M.G. (1999). Effect of the Lactic Acid Bacterium *Streptococcus thermophilus* on Ceramide Levels in Human Keratinocyte *in vitro* and Stratum Corneum *In vivo*. *J. Invest. Dermatol.* 113, 98–106.
- Forbat, E., Al-Niaimi, F., and Ali, F.R. (2017). Use of nicotinamide in dermatology. *Clin. Exp. Dermatol.* 42, 137–144.
- Garg, T., Ramam, M., Pasricha, J.S., and Verma, K.K. (2002). Long term topical application of lactic acid/lactate lotion as a preventive treatment for acne vulgaris. *Indian J. Dermatol. Venereol. Leprol.* 68, 137–139.
- Gariboldi, S., Palazzo, M., Zanolio, L., Selleri, S., Sommariva, M., Sfondrini, L., Cavicchini, S., Balsari, A., and Rumio, C. (2008). Low molecular weight hyaluronic acid increases the self-defense of skin epithelium by induction of beta-defensin 2 via TLR2 and TLR4. *J. Immunol.* 181, 2103–2110.
- Gueniche, A., Bastien, P., Ovigne, J.M., Kermici, M., Courchay, G., Chevalier, V., Breton, L., and Castiel-Higounenc (2010a). *Bifidobacterium Longum* Lysate, a New Ingredient for Reactive Skin.
- Gueniche, A., Benyacoub, J., Philippe, D., Bastien, P., Kusy, N., Breton, L., Blum, S., and Castiel-Higounenc, I. (2010b). *Lactobacillus paracasei* CNCM I-2116 (ST11) inhibits substance P-induced skin inflammation and accelerates skin barrier function recovery *in vitro*. *Eur J Dermatol* 20, 731–737.
- Guo, J., Brosnan, B., Furey, A., Arendt, E., Murphy, P., and Coffey, A. (2012). Antifungal activity of *Lactobacillus* against *Microsporium canis*, *Microsporium gypseum* and *Epidermophyton floccosum*. *Bioeng Bugs* 3, 102–111.
- Jourdain, R., Moga, A., Vingler, P., El Rawadi, C., Pouradier, F., Souverain, L., Bastien, P., Amalric, N., and Breton, L. (2016). Exploration of scalp surface lipids reveals squalene peroxide as a potential actor in dandruff condition. *Arch. Dermatol. Res.* 308, 153–163.
- Khmaladze, I., Butler, E., Fabre, S., and Gillbro, J.M. (2019). *Lactobacillus reuteri* DSM 17938-A comparative study on the effect of probiotics and lysates on human skin. *Exp. Dermatol.* 28, 822–828.
- Kodali, V.P., and Sen, R. (2008). Antioxidant and free radical scavenging activities of an exopolysaccharide from a probiotic bacterium. *Biotechnol J* 3, 245–251.
- Kofuji, K., Aoki, A., Tsubaki, K., Konishi, M., Isobe, T., and Murata, Y. (2012). Antioxidant Activity of β -Glucan. *ISRN Pharm* 2012.
- Krishnakumari, V., Rangaraj, N., and Nagaraj, R. (2009). Antifungal Activities of Human Beta-Defensins HBD-1 to HBD-3 and Their C-Terminal Analogs Phd1 to Phd3. *Antimicrobial Agents and Chemotherapy* 53, 256–260.
- Lee, Y.-M., Han, S.-I., Song, B.-C., and Yeum, K.-J. (2015). Bioactives in Commonly Consumed Cereal Grains: Implications for Oxidative Stress and Inflammation. *J Med Food* 18, 1179–1186.
- Lew, L.-C., and Liong, M.-T. (2013). Bioactives from probiotics for dermal health: functions and benefits. *J. Appl. Microbiol.* 114, 1241–1253.
- Mendez-Encinas, M.A., Carvajal-Millan, E., Rascon-Chu, A., Astiazaran-Garcia, H.F., and Valencia-Rivera, D.E. (2018). Ferulated Arabinoxylans and Their Gels: Functional Properties and Potential Application as Antioxidant and Anticancer Agent. *Oxid Med Cell Longev* 2018.
- Muizzuddin, N., Maher, W., Sullivan, M., Schnittger, S., and Mammon, T. (2012). Physiological effect of a probiotic on skin. *J. Cosmet. Sci.* 63, 385–395.
- Thiele, J.J., Schroeter, C., Hsieh, S.N., Podd, M., and Packer, L. (2001). The antioxidant network of the stratum corneum. *Curr. Probl. Dermatol.* 29, 26–42.
- Xu, Z., Wang, Z., Yuan, C., Liu, X., Yang, F., Wang, T., Wang, J., Manabe, K., Qin, O., Wang, X., et al. (2016). Dandruff is associated with the conjoined interactions between host and microorganisms. *Scientific Reports* 6, 24877.

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