INTRODUCTION

Women Health - The burden of Vaginal dysbiosis

Dysbiosis is a condition characterized by a perturbed or imbalanced microbiota, where dominant species are overwhelmed by exogenous or minor ones. Several factors may influence microbiota composition, ranging from lifestyle habits to hormonal changes, to the use of therapeutic compounds or to the spread of infective microorganisms.

A vaginal microbiome not dominated by Lactobacillus species has been associated with severe diseases, such as increased sensitivity and transmissibility to HIV, HPV and other STD, increased risk of pelvic inflammatory disease, preterm birth and neonatal infections.

Vaginal dysbiosis affects every year 300 million women worldwide:
- 70% have experienced vaginal infections once
- 10% of them have frequent relapses

Antibiotic treatment is the standard therapy for vaginal infections, but sometimes failed to prevent recurrences. A major responsible for recurrences is the formation of a pathogenic biofilm over the vaginal epithelium. Biofilm acts as a barrier for the killing action of antibiotics and can provide a protective shield for the pathogens when the antifungal agents fail to reach them.

ORAL MULTISPECIES PROBIOTIC SUPPLEMENT TO COLONIZE VAGINAL EPITHELIUM, IMPROVE BACTERIAL VAGINOSIS SYMPTOMS AND RESTORE VAGINAL MICROBIOTA.

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IN-VITRO DOSSIER

Anti-microbial activity

Probiotics transform nutrients into helpful metabolites and counteracts pathogens invasion through:
- Exclusive: protection of adhesive sites
- Displacement: pathogen removal from adhesive sites
- Competition: quicker settlement than pathogens in adhesion sites

Anti-biofilm activity

Selected species showed a strong inhibition of pathogen biofilms in different experimental models:
- Agar plate overlay assay against E. coli and C. albicans
- Co-ex-vivo reconstructed human vaginal epithelium (RHVE) against G. vaginosis and A. vaginae

Modulation of inflammation

Probiotic strains show immunomodulating activity in a BALB 3T3 Fibroblast model. A normal modulatory activity was demonstrated by two Lactobacillus strains:
- Excellent and significant modulation of anti-I cytokine IL-10: > 30 & 60 times vs. G. vaginosis-induced inflammation
- Excellent and significant modulation of anti-I cytokine IL-10: > 20 & 5 times vs. A. vaginae-induced inflammation

Results

Significant increase of administered species DNA detected in vaginal swab. These increments were significant also after one week from supplementation end (T21).

References:


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CONCLUSIONS

Orally administered probiotic were able to modulate vaginal microbiota, improving the number of administered species.

Microbota modulation was observed also a week after end of supplementation, suggesting an active colonization from administered strains.

We assume that the efficacy demonstrated by topical administration will be confirmed through oral intake.

Further studies will follow.