

## **EFFECT OF INTESTINAL MICROBIOTA MODULATION INDUCED BY THE CHICORY INULIN-TYPE $\beta$ -FRUCTANS ON METABOLIC PARAMETERS AND BIOMARKERS OF THE GUT-SKIN AXIS IN CHRONIC SKIN INFLAMMATION**

The gut microbiota contributes to the health of the host. It enables the digestion of food, the proper functioning of the immune system, and protection against the invasion of pathogens. The gut microorganisms play a key role in maintaining the integrity of the intestinal epithelium. The epithelium serves as a selective barrier that, on the one hand, separates the immune cells of the intestinal mucosa from the microorganisms present in the lumen of the gut, and at the same time allows microbial metabolites to interact with the host cells and thus regulate the immune response. Dysbiosis of the intestinal microflora may result in damage to the intestinal integrity and, consequently, an increase in the permeability of the intestinal barrier. The translocation of bacterial antigens and metabolites into the bloodstream contributes to the activation of the local and systemic immune response resulting in local and systemic inflammation. Disruption of the interaction between the gut microbiome and the host can lead to inflammation. Plaque psoriasis is a chronic, immune-mediated dermatitis. It is manifested by peeling, itching, and reddening of the skin. Psoriasis is a non-communicable disease affecting approximately 2-3% of the world's population, regardless of gender and age. In most cases (about 70-80%), the skin lesions are mild and do not require systemic treatment. The etiology of psoriasis development is not fully understood. In addition to genetic predisposition, the increased immune response in psoriasis may be a consequence of systemic inflammation due to intestinal dysbiosis associated with increased intestinal permeability.

Dietary ingredients support skin health. Among them, prebiotics gained our special interest as ingredients with proven beneficial effects on host health by modulating the gut microflora. Inulin-type fructans derived from chicory are prebiotics that favorably alters the composition and activity of the intestinal microbes and alleviates the inflammation in the intestines. So we suppose that restoring the balance of the gut microbiome and the proper functioning of the intestinal barrier in subjects with psoriasis will alleviate the inflammatory symptoms and skin lesions observed in this chronic dermatitis. The aim of our research is to determine whether dietary supplementation with inulin-type  $\beta$ -fructans derived from chicory will transfer health benefits to people with psoriasis and to investigate whether these benefits are due to modification of the composition or activity of the gut microbiota.

To achieve this goal, we propose original, advanced, and complex studies conducted on subjects with psoriasis to investigate the effects of dietary inulin-type fructans on the characteristics of the gut microflora, metabolic parameters, and biomarkers of the skin-gut axis. The obtained results will provide new knowledge and explain the nature of the interaction between the gut microbiota and the skin, providing further clues about the functioning of the gut-skin axis.