MICROBIOME AND NATURAL REMEDIES IN TREATMENT OF DERMATOLOGICAL DISEASES

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Introduction. Acne vulgaris, a chronic inflammatory skin condition, remains one of the most prevalent skin disorders globally, affecting millions, particularly during adolescence. While traditionally associated with hormonal fluctuations, excess oil production, and blocked pores, many research also highlights the significant role of the gut and skin microbiome and probiotics in the pathogenesis and management of acne.

The pathogenesis of acne occurring by dysbiosis, and it's refers to an imbalance of microbial species and reduction of microbial diversity within certain bodily microbiomes i.e., the accumulation of microorganisms existing in a specific part of the human body. The human gut microbiota plays a significant role in maintaining gutskin homeostasis, and whole body. Disruption of this equilibrium is characterized by the overgrowth of some bacterial species, pathogens, fungal and an overall loss of community diversity. The dysbiosis can lead to chronic diseases impaired wound healing, increased inflammation, and greater risk for diverse infection in the body and on the skin. Dysbiosis take to metabolic deregulation that affect immunologically the skin barrier. This article delves into the intricate relationship between the microbiome, probiotics, natural components and acne, exploring how manipulating these factors may lead to effective therapeutic strategies.

Materials and methods. To achieve the goal has been involved logical-content issue formation methods, content-analysis of publications in scientific and practicallyoriented medical and pharmaceutical publications, comparative analysis and graphic tools of visual presentation from obtained data.

Determination and observational studies comprehend clinical analyses, by diagnose of acne at skin. The treatment of dermatological disease (acne) included main bee-herbal remedies and probiotics.

As the gut absorbs important nutrients for healing and recovery additional consume of fermented foods including the administration of probiotics, prebiotics, and synbiotics was included in treatment to enhance the microbiome.

Results and their discussion. The human skin is a land to a diverse array of microbial communities, collectively known as the skin microbiome. These microorganisms, which include bacteria, fungi, and viruses, play a crucial role in maintaining skin health. They contribute to barrier function, modulate immune responses, and compete with pathogens. In acne vulgaris, the balance of microbial populations in the gut and on the skin can be disrupted, leading to an overgrowth of opportunistic pathogens. One of the primary bacteria associated with acne is *Cutibacterium acnes (Propionibacterium acnes)*. While traditionally viewed as a culprit contributing to acne lesions, recent studies suggest that C. acnes is part of a complex ecosystem that, when imbalanced, can exacerbate inflammation and acne severity. Other bacteria, such as *Staphylococcus epidermidis* (staphylococcal

lipoteichoic acid) inhibits P. acnes induced inflammation and may protect against acne by exerting anti-inflammatory effects competing with acne promoting bacteria. *Staphylococcus (Staphylococcus aureus)* habitant of human skin, mucosa and are involved most common infections. Although S. aureus usually acts as a commensally human microbiota, it can also become an opportunistic pathogen, as a common cause of skin infections including abscesses, respiratory infections (such as sinusitis), and other complications, such as peritonsillar abscess, otitis media, sinusitis, bacteremia so on. Chronic low-grade streptococcus can move from the liver to the lymphatic system and even reach the skin, leading to cystic acne.

To maximize the potential benefits of natural therapy in managing acne, a comprehensive approach should be adopted, that includes:

• personalized treatment plans - understanding individual skin types and acne grade severity can guide the selection of appropriate herbal, bee product and fermented products formulations.

• combination therapies - leveraging the synergistic effects of multiple natural products plus probiotics or integrating them with conventional treatments may enhance overall efficacy to quick recovery.

• patient education - encouraging patients to adopt natural remedies and suppl. requires education about proper usage, benefits, and monitoring for side effects.

Anti-inflammatory components of medicinal plant extracts can inhibit the activity of pro-inflammatory cytokines, while antibacterial agents can reduce the microbial population of infections. Moreover, plant extracts and native plant-based products demonstrate antioxidant properties that combat oxidative stress, which contributes to the inflammatory processes in acne.

Probiotics may restore the composition of the gut microbiome and introduce beneficial functions to gut microbial communities, resulting in amelioration or prevention of gut inflammation and other systemic inflammatory diseases.

Naturally fermented foods are getting a lot of attention from health experts as dietary supplements promoting health of gut microbiome - live microorganisms crucial to healthy digestion and human health. Researchers are beginning to link human microbiome to all sorts of health conditions from metabolism deregulation, skin diseases to obesity to neurodegenerative diseases. The results are presented in the publication: "The use of medicinal plant raw materials and bee products in the treatment of dermatological diseases. <u>http://nphj.nuph.edu.ua</u> 2025"

Conclusion. As the research continues to elucidate the connections between the microbiome, probiotics, and skin diseases, it is becoming increasingly clear that a multifaceted approach may be necessary for effective treatment. Enhancing the microbiome's health through dietary changes, probiotics, and lifestyle modifications may provide complementary benefits. And it is enough effective at the moderate acne lesions stages, that can be prevented and treated without complex therapy.

As with any emerging field, more clinical studies are needed to validate the efficacy of probiotics in the treatment of skin diseases as in our research - acne vulgaris. However, the prospect of harnessing the power of the microbiome offers hope for new,



innovative strategies in the ongoing battle against acne, emphasizing a holistic approach to skin and gut health.

GUT MICROBIOTA AND PSORIASIS

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Introduction. Psoriasis is a chronic immune-mediated inflammatory hyperproliferative skin disease affecting approximately 2-3% of the population. Genetic factors, immune system disorders, and environmental factors are considered to be the most important in its etiology. However, it is in relation to psoriasis that the greatest amount of evidence has been accumulated regarding its relationship with digestive tract pathology, most often chronic intestinal diseases.

Materials and methods. Analysis of modern scientific research and literary sources in the field of bacteriology, clinical microbiology, pathophysiology and immunology regarding the study of the relationship between intestinal microflora and the pathogenesis of psoriasis.

Results and their discussion. It has been established that the prevalence of psoriasis in patients with Crohn's disease is significantly higher than in the population - 9.6%. Crohn's disease is a chronic progressive inflammatory disease that affects any part of the digestive tract. Crohn's disease, like psoriasis, has an autoimmune etiology.

Recently, data on the comorbidity of psoriasis and celiac disease (gluten enteropathy) have appeared. Celiac disease is a chronic intestinal disease of immune etiology, associated with a specific inflammatory reaction of the mucous membrane of the small intestine when consuming products containing cereal protein - gluten. An increase in the level of serological markers of celiac disease (antibodies to gliadin, immunoglobulin A) was noted in 14% of patients with psoriasis, in the control group - in 5%.

In addition, their values correlate with the severity of psoriasis. At the same time, in psoriasis, against the background of increased antibodies specific for celiac disease, histological markers of damage to the intestinal mucosa were not always detected. This may indicate a predisposition of some psoriasis patients to the development of gluten intolerance. Data were obtained indicating a decrease in the severity of clinical manifestations of psoriasis and laboratory markers of celiac disease when following a gluten-free diet.

Pathophysiological parallels in the development of psoriasis and chronic intestinal diseases are not limited to a tendency to immune autoaggression. Thus, complications of psoriasis in various diseases of the gastrointestinal tract, accompanied by damage to the intestinal wall, are associated with increased permeability of the

