**The role of herbal products and probiotics in Multiple Sclerosis**

Nasrin Farjad 1, Zahra Etemadifar1\*

1- Department of Cell and Molecular Biology & Microbiology, Faculty of Biological Science and Technology, University of Isfahan, Isfahan, Iran

\*z.etemadifar[at]sci.ui.ac.ir

**‌ Statement of Problem:** Multiple sclerosis (MS) is a chronic autoimmune and inflammatory neurodegenerative disease of the central nervous system (CNS). MS attacks myelinated axons in the CNS, destroying myelin and axons with varying degrees of damage. Approximately 2.5 million people worldwide have MS. Epidemiological studies have shown that women are more likely to develop MS than men. Various drugs are available to treat MS, including oral (fingolimod), injectable (interferons), and monoclonal antibodies (natalizumab). Some drugs are not safe after long-term use because they cause severe side effects.

**Research Purpose:** Herbal remedies and probiotic supplements seem to be more effective in treating MS. Herbs reduce neuroinflammation and improve sleep quality, reduce muscle stiffness, and improve bladder problems. Probiotics also have significant functions in overcoming autoimmune disorders and intestinal dysbiosis. For this reason, the use of probiotics and herbal medicines can reduce central nervous system (CNS) inflammation without severe side effects.

**Research Method:** The search in reputable scientific sites and journals with suitable key word.

**Results and Conclusion:** It is possible to effectively treat the common symptoms of MS using herbal medicines that have anti-inflammatory and antioxidant properties to prevent the destruction of the myelin sheath without side effects. Phytochemicals are very active biological compounds that exist naturally in plants and act as prebiotics .For example, *cannabis* extract reduces pain and spasm-related challenges in MS. Probiotics can modulate the host organism's immune responses by producing antimicrobial agents such as bacteriocins. The gut microbiome is altered in MS. Probiotics can naturally stimulate an anti-inflammatory environmental immune response in MS patients. Modulation of the gut microbiome using probiotics is beneficial for the treatment of MS. *Lactobacillus reuteri* treatment of MS alters gut microbiota and modulates Th1 and Th17 and their associated cytokines.

**Keywords:** probiotic , Multiple sclerosis, Herbal therapies, auto-immune disorder.