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Psychobiotic Therapy: Use of Probiotic Microorganisms to Reinforce the Immune System

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ABSTRACT

Psychobiotics are probiotic microorganisms that beneficially affect the central nervous system functions mediated by the gut-brain axis, improving the host's immune system. Psychobiotic microorganisms can regulate brain pathways and produce tryptophan, the precursor to serotonin. Tryptophan metabolism influences mood, sleep, neurotransmitters, and immune response. The main microbial genera with psychobiotic characteristics are *Lactobacillus*, *Lactococcus*, *Bifidobacterium* and *Saccharomyces*. The daily consumption of psychobiotics is called 'Psychobiotic Therapy'. Psychobiotic therapy has proven antidepressant/anxiolytic properties. Psychobiotic therapy can be used to boost the host's immune balance against pathogens, for example: virus, bacteria and fungus. Thus, psychobiotic therapy can be a promising strategy to improve and/or maintain the quality of life of people who are healthy or who suffer from anxiety/stress disorders, intestinal dysbiosis and even immunosuppressed people. Correlating with the current time, the benefits of using psychobiotic microorganisms can be appreciated by the general population. For example, the world today suffers from a pandemic, COVID-19 (highly infectious disease caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). In addition to physical disorders, COVID-19 outbreak can also harm the mental health of professionals and the general population, causing anxiety, stress, panic and depression, may result in immune imbalance. In view of this, there is a clear need for the urgent methods that aim to the balance of the population's mental health. Thus, the utilization of psychotropic remedy to control problems related to emotional health during this pandemic is almost inevitable. The use these remedies are often associated with endocrine and metabolic side effects, which involve changes in the composition of the gut microbiota. Thus, the adoption of less aggressive 'therapy' to the host body needs to be considered, such as "Psychobiotic Therapy". Daily consumption of beneficial microorganisms may present a lower risk of body rejection reactions causing allergies or other metabolic disorders.

Keywords: Probiotic microorganisms, Gut-brain axis, Psychobiotics microorganisms, Healthy eating, Mental/immunological disorders, Anxiety/stress disorders

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