

Abstract

As depression is a major disease that affects millions of people across the globe, there are many different methods to treat it. There are a few methods to treat depression, of which prebiotics and probiotics are emerging. Probiotics and prebiotics have previously been used for other purposes, primarily for treating the gut. However, both have been shown to be effective at treating depression as a major factor in depression is the gut health of the individual. As a result, people with worsened gut health may be more likely to have depression. This research will explore the effectiveness of probiotics and prebiotics individually and in combination on drosophila with different gut conditions. This is to determine whether these two treatments are better for usage in individuals with certain gut health levels. The model organism being used for this experiment will be drosophila as they can easily be induced with depression using levodopa, which will also be done in this study. After depressing the flies, their initial depression levels will be measured using a negative geotaxis assay and a forced swim test. Thereafter drosophila will be treated with bifidobacterium, inulin, both, or used as a control (levodopa or wild type). After all the treatment has been done, another negative geotaxis assay and forced swim test will be done to determine the depression levels after treatment. Thereafter the gut health of the drosophila will be assessed to make a connection between the gut health and treatment method effectiveness.

Keywords: Probiotics, Prebiotics, Gut Health, Depression, Drosophila, Gut-Brain Axis