Healthy Gut! Healthy You!: Using Dorotocephala dactyligeria as a Model to Treat Gastrointestinal and Psychological Disorders With Novel Regenerative Enzymes

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As of 2022, 49% of adolescents and 25% of adults suffer from psychological disorders. Out of those groups, approximately 60% suffer from gastrointestinal disorders. In addition, for the past decade, these disorders have been increasing exponentially, especially amongst people of low socio-economic status, ultimately making it important to find cost-effective treatments for these disorders. My research aims to discover not only a possible treatment for those who have a psychological and gastrointestinal disorder(s) but also provide cost-effective solutions that improve quality of life substantially. The research design included modeling human digestive and nervous systems using Dorotocephala Dactyligeria, known as Planaria. Four groups of Planaria were established: the control group, negative enzyme, positive ethanol group, positive ethanol, positive enzyme group, and the positive enzyme, negative ethanol group. The enzymes (Papain, Amylase, Bromelain) and Ethanol were used to test differences in gastrointestinal, and psychological health. Behavioral data was collected and analyzed i.e. coiling tail, sociability, irregular sense of direction, metabolism, seizure-like movements, upward head movements, and amount of isolation within five minutes. After data collection (30 trials), chi-squared analyses were performed. Groups where the enzyme was present outperformed their non-enzyme counterparts. ($p<0.0001$). The control versus the positive ethanol group was also statistically significant ($p=0.0031$). The results show that the enzymes are effective at decreasing symptoms associated with psychological and gastrointestinal distress. The novel discovery will pave the way for treating diseases such as ulcerative colitis, Crohn’s disease, and chronic Gastritis.

Awards Won: