Modulation of the GABAergic System to Alleviate Generalized Anxiety Disorder Utilizing a Passiflora incarnata Derived Flavonoid-Based Medicated Chewing Gum

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Anxiety is an ever-growing issue plaguing modern society as it becomes more prevalent in young adults and adolescents, particularly Generalized Anxiety Disorder (GAD). Despite the existence of both pharmaceutical medications, such as Benzodiazepines, and herbal remedies like teas, these resolutions are accompanied by ramifications ranging from inconvenience to inaccessibility, side effects, and chronic addiction. However, flora such as passionflower display promising botanical and biochemical properties, including the presence of flavonoids, which enhance GABA quantities in the brain, and serve as an effective treatment. Therefore, this research investigates the extent to which flavonoids can be extracted from Passiflora incarnata for incorporation into a solid medicated chewing gum (MCG) form in order to alleviate anxiety. The initial step of experimentation was to develop the medicated chewing gum infused with a flavonoid extract from P. incarnata. After the chewing gum's production, photomicrographs of the cross-sections of the gum were analyzed in the ImageJ software to calculate percent content uniformity, where the acceptance value was calculated as 8.4288- a value sufficient to pass the content uniformity test. Furthermore, the Shinoda phytochemical test for flavonoids was conducted on a sample of the gum and yielded an orange hue, which indicates the presence of flavones- an anxiolytic compound found only in P. incarnata. To quantify the Shinoda test results, a spectrophotometric analysis was conducted, and the results proved to be statistically significant; thus, the flavonoids retained their anxiolytic properties within the medicated chewing gum.

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