Column Purification of Hawaiian Grown Mamaki Tea Extracts and Investigation of Associated Compound Stability in Simulated Intestinal and Gastric Fluids

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Mamaki tea is a native Hawaiian plant species that is best known for its medicinal uses. It is endemic to and geographically restricted to the Hawaiian Islands. Mamaki tea contains different types of antioxidants, such as catechin, chlorogenic acid, and rutin. Additionally, antioxidants were reported to play an important role in cancer chemoprevention and development. In previous years of research, Mamaki tea extract samples AS-25 and AS-10 showed very promising biological properties in anticancer and cancer chemopreventive assays. In this work, normal-phase and reverse-phase flash column chromatography was used to purify these extracts in an effort to identify the chemical basis and discover potential new natural products. One pure compound (1.5 mg) was obtained, though its chemical structure and identity needs to be further characterized. The major fraction from the reverse-phase column purification of sample AS-10 produced new peaks after being stored for one week, suggesting chemical instability and decomposition. This led to the additional stability study of Mamaki tea's associated natural products: chlorogenic acid, catechin, and rutin. Evaluation revealed that the compounds showed high stability in simulated gastric fluid but to the contrary, compounds did not display as high of stability in simulated intestinal fluid.