

The oxidoreductase enzymes that comprise the human cytochrome P450 (CYP 450) system are vital in metabolism, lipid synthesis and detoxification of the human body. It is known that enzymes in this pathway process the majority of pharmaceuticals currently on the market, thus the study of these enzymes is an important element in the identification of possible drug interactions. The amazon acai berry has gained popularity in recent years due to its reported health benefits and has been deemed by many health organizations as a superfood. However, little research has been performed on acai berries to adequately support these claims. The purpose of this research was to determine the effects of isolated acai berry extracts on the activities of the CYP 450 enzymes 3A4 and 2D6 to determine if there was the potential for adverse drug interaction. To establish this, the activity of both enzymes was measured using a commercial assay kit in the presence and absence various acai fractions. The results obtained suggest that compounds in certain acai fractionations inhibit the activity of the human 3A4 and 2D6 by up to 70%. Furthermore, using an activity-guided fractionation approach, it was determined that one of the primary compound in acai berries that is responsible for this inhibition is diosmetin, which is a known flavonoid inhibitor of CYP 450 enzymes. While further research into the metabolism of acai berries must be conducted, these findings imply that eating acai berries may adversely affect the metabolism of certain medications and thus result in drug interactions.