

**WIU CENTENNIAL HONORS COLLEGE**  
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**Abstract**

Poster

Major: Forensic Chemistry

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**Antioxidants in Hot-Brewed and Cold-Brewed Teas**

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Free radicals are reactive entities that can enter the body through sources such as fast food, air pollutants, and pesticides. It has been postulated that exposure to free radicals can lead to the development of diseases such as cancer, hypertension, and Alzheimer's. Free radicals are highly reactive because they lack an electron, thus making them steal electrons from healthy cells in the human body. Antioxidants can neutralize the reactivity of free radicals by donating an electron to them. Black and green teas have been studied as an antioxidant source, and there are different ways to prepare teas. The hot-brewed method entails soaking tea leaves in hot water for a short period of time whereas cold-brewed teas are prepared by soaking tea leaves in cold water for several hours. In this study, the antioxidant capacity of hot-brewed teas and cold-brewed teas will be measured. Both black and green teas will be tested using a method called the ferric reducing ability of plasma (FRAP) assay. This method employs the use of a complex that undergoes a reduction reaction that mimics the reaction that occurs between free radicals and healthy cells in the human body. A standard antioxidant source, ascorbic acid, is then added to the complex to neutralize it. The change that occurs is represented with a visible spectrum that is recorded with a spectrophotometer. Currently, variables such as light exposure, time of addition of the antioxidants, and boiling water temperature are being investigated to see how they affect the antioxidant capacity. The testing of the hot-brewed teas and cold-brewed teas is still to be conducted.