

The growing world population has prompted scientists to begin searching for a new, innovative way to feed more people. One proposed solution is to begin supplementing animal feed for cows, chickens, pigs, and fish with algae abundant in essential amino acids that the animals cannot produce themselves. The more animals that can be cheaply raised, the more people around the globe that will have access to a food source. Our research focuses on the development of a reliable and accurate method for the extraction of amino acids in algae cells and the determination of amino acids by high performance liquid chromatography (HPLC). Amino acids are the building blocks of proteins and are found within the algae cell. Before analysis, amino acids must be derivatized using dinitrofluorobenzene (DNFB). Specifically, we are focusing on measuring the reaction efficiency of the derivatization for individual amino acids using HPLC and UV-Visible Light Spectroscopy. By measuring reaction efficiency, the ability of DNFB to convert amino acids to their derivatized form can be quantized. Additionally, this will provide insight into areas in which our methodology can be changed to produce a higher reaction efficiency.