

## Abstract

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). Additionally, we want to explore the amino acid profile of different species of algae in order to determine which produces the highest percent of essential amino acids. Amino acids are the building blocks of proteins and are found within the algae cell. First, the amino acids must be extracted out of the cell using hydrochloric acid (HCl) and then derivatized using dinitrofluorobenzene (DNFB) before being analyzed on the HPLC instrument. The relative abundance of each peak and the comparison to amino acid standards allows for the quantification of each amino acid in the algae sample.