The purpose of this experiment was to determine if food additives (specifically MSG, Sodium Benzoate and Yellow #5) influence serotonin levels, thus indicating a potential link to clinical depression. The hypothesis of this experiment is as follows: The presence and ingestion of the food additives MSG, Sodium Benzoate, or Yellow #5 will cause a decrease in serotonin levels and in turn lead to symptoms of clinical depression. Blood was drawn from crayfish and then was quick frozen. After three blood draws, one draw per week for three weeks, the blood was taken to CSU for analysis. The analysis was done using an ELISA test. The raw data was gathered, sorted, and analyzed. The results of this experiment are that the ingestion and presence of these food additives does cause a drop in serotonin which in turn could lead to symptoms of clinical depression.