CHEM 280 & CHEM 180H SEMINAR SERIES

An Investigation of Effective Natural Supplements in Promoting Ethanol Soberness via *Drosophila melanogaster*

Presented by

Aaron Asparin

Noon – 12:50 p.m.

Abstract

Ethanol addiction is amongst the leading types of addictions throughout the entire world. Oftentimes, attempts at abstaining from ethanol with pre-existing abuse disorders can lead to painful withdrawal symptoms, and in even more dire scenarios: death. A nervous system that has been exposed to chronic ethanol abuse develops GABA receptors that are less sensitive to endogenous GABA. When the same nervous system then practices drastic ethanol abstinence, sensations that are typically negatively-modulated by GABA are no longer inhibited, leading to severe symptoms such as delirium tremens and epileptic seizures. The leading biochemical approach to treating these symptoms is to inhibit sensory neurotransmission throughout the nervous system via inciting chloride ion channels to open, increasing the electrochemical threshold required to stimulate a neuron via depolarization. Thus, hospitals often employ the help of barbiturates– specifically phenobarbital which stimulates GABA neurotransmitter receptors to increase the amount of time that chloride channels are open. This consequently inhibits the central nervous system– a system in control of sensory and response function– which in turn suppresses withdrawal symptoms and epileptic-induced collapse. However, two problems lie in this method of treatment: barbiturates are addictive, and phenobarbital is a controlled substance. In this presentation, a research model to test the efficiency of uncontrolled, natural GABA supplements via analysis of *Drosophila melanogaster* (fruit fly) behaviors will be explored.

History and Contemporary Application of the Mitsunobu Reaction

Presented by

Aaron Chhun

1:00 – 1:50 p.m.

Abstract

The Mitsunobu reaction is a tried-and-true synthetic protocol for the creation of organic compounds. Although discovered nearly half a century ago, its versatility makes it a widely popular and viable reaction to this day. The reaction allows for the conversion of an alcohol to an alternative functional group molecule, including esters, amines, sulfonamides, and more, through coupling with a pronucleophile in the presence of azodicarboxylate and phosphine; additionally, the reaction is stereospecific because of inversion from SN2 displacement. Today, the Mitsunobu reaction is still utilized for its advantages in the synthesis of natural products and pharmaceuticals. This presentation will give a brief introduction to the reaction as well as its history, proposed mechanism, and contemporary uses.

FRESNO STATE
Chemistry and Biochemistry

Friday, October 13, 2023
Agriculture Mechanics, Room 102