The purpose of my research was to quantify the degree to which the antennae of female *Manduca sexta* responded to seven different plant volatiles (methyl salicylate, linalool, butanone, cis-jasmone, benzaldehyde, geraniol, nonanol). All of these compounds are emitted by the solanaceous host plants of *M. sexta*. Because females rely on odors to both locate host plant for oviposition and feeding, the seven compounds I selected are ecologically relevant. To measure the strength of the antennal response to each chemical stimulus, I recorded electro-antennograms (EAGs). My goal was to identify the dynamic range of response for each plant volatile. To this end, I tested a range of concentrations of each plant volatile, and determined which concentrations produced EAG responses ranging from just-noticeable to maximal. I successfully generated dynamic ranges of response for all seven plant volatiles. This information will be used in future studies to help identify the molecular basis of olfaction in *M. sexta* females.