In plants, the major lipids are synthesized in the chloroplasts. Chloroplast membranes have receptors that mediate the import of enzymes that are synthesized in the cytoplasm, including enzymes in the jasmonic acid (JA) pathway. The JA pathway is stimulated by herbivore wounding, beginning with stimulation of a specific type of enzyme that releases linolenic acid (18:3) from major chloroplast lipids. Inside the chloroplasts, free 18:3 is modified by sequential action of three enzymes, which yields the first stable compound called phytodienoic acid (OPDA) that is then exported to the peroxisomes where it is used in the synthesis of JA. Since the JA pathway is initiated in the chloroplast, the goal of this study is to evaluate the role of specific chloroplast receptors in facilitating the import of enzymes in the JA pathway. The hypothesis is that the defect in TOC120/132 chloroplast receptors will impair the initial steps in the JA pathway. To test this hypothesis, the expression of genes that encode for enzymes that catalyze the JA pathway and the expression of JA-responsive genes will be analyzed. Total RNA will be extracted from the wild type and mutant plants. Complementary DNA will be synthesized and quantitative polymerase chain reaction (qPCR) will be carried out using gene-specific primers. Determining if the mutant will respond in the same way as the wild type would indicate whether or not the enzymes that function in the JA pathway are imported mainly through the TOC120/132 receptor complex.