List of Figures

Figure 1.1. Various effect of touch stimuli on plants……4

Figure 1.2. Model for Plant perception of touch……11

Figure 2.1: Regular touch treatment suppresses plant growth……28

Figure 2.2: Regular Touch treatment suppresses stem, root and leaf growth in *C. cajan* seedlings……..30

Figure 2.3 : Microscopic examination of *C. cajan* stem indicates increased compactness and thickness of cells……31

Figure 2.4: Nyctinasty movements of *C. cajan* leaves are altered upon touch treatment……32

Figure 2.5: Touch treatment induces ROS production……..33

Figure 2.6: Touch treatment alters chlorophyll a/b ratio……..34

Figure 2.7: Regular touch stimuli alters root nodule development in *C. cajan*…..……..36

Figure 2.8: Touch treatment alters anatomy of root nodule in *C. cajan*……..39

Figure 2.9: Effect of touch on seedlings affects growth in adult plants……40

Figure 3.1: Flow chart of TCH gene identification and study of gene expression in *C. cajan*……53

Figure 3.2: Sequence BLAST analysis in *C. cajan*……...……...59

Figure 3.3: Multiple Sequence Alignment of Arabidopsis AtTCH1 with *C. cajan* orthologues……..62

Figure 3.4: Multiple Sequence Alignment of Arabidopsis AtTCH2 with *C. cajan* orthologues……..63

Figure 3.5: Percent Identity Matrix for multiple sequence alignment of TCH gene orthologues……..64

Figure 3.6: Dendrogram representing the sequence relatedness of AtTCH-1, -2 and -3 and their *C. cajan* orthologues……..64

Figure 3.7: Effect of touch stimuli on expression of TCH gene orthologues in *C. cajan*……65

Figure 3.8: Adaptations of C. cajan to regular mechanical stress……67

Figure 4.1: Regular touch treatment suppressed growth rice seedlings……...78

Figure 4.2: Regular Touch treatment suppresses stem, root and leaf growth in rice seedlings……..79

Figure 4.3: Touch treatment induces ROS production in rice seedlings……80

Figure 4.4: Touch treatment alters chlorophyll a/b ratio……80

Figure 4.5: Identification of orthologues for TCH1 gene……...……..81

Figure 4.6: Identification of orthologues for TCH2 gene……..……...82

Figure 4.7: Identification of orthologues for TCH3 gene……..……...83

Figure 4.8: Mechanical stress induces expression of JA responsive genes in rice seedlings……...……85