

Evaluation of Peanut Breeding Lines to Identify Differential Expressed Genes Involved in Leaf Spot Resistance

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Leaf spots, early (ELS) and late (LLS), are fungal pathogens that can significantly limit peanut production in the United States and around the world. Breeding for high resistance in peanut has been challenging due to strong genotype by environment interaction. These complex traits are controlled by many major and minor quantitative trait loci (QTLs). In our previous research, two genomic regions on chromosome 09 were linked to significant resistance to both ELS and LLS. Several candidate resistance genes were identified on chromosome 09 and maybe associated with leaf spot resistance. The goals of this research were to 1) identify candidate genes for leaf spot resistance, and 2) to associate gene-expression to leaf spot resistance. Candidate genes include TMV resistance protein N-like, PTI1-like tyrosine-protein kinase, pto-interacting protein, cysteine-rich receptor-like protein kinase, and phyto-sulfokine receptor-like. Gene-expression levels and patterns will be associated with peanut genotypes with leaf spot resistance. This research will facilitate the development of peanut varieties with high leaf spot resistance.