

Inheritance and Mapping of Albino Virescent-Leaf and Lutescent-Leaf Traits in Peanut.

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Two chlorophyll-deficient leaf mutations have been identified in advanced peanut (*Arachis hypogaea*, L.) breeding lines at the University of Georgia. The Lutescent-Leaf mutant, which causes a yellowing of the leaf, mid-rib and leaf margins was previously shown to be controlled by recessive alleles at 2 genes (*lut₁* and *lut₂*). A newly described, Albino Virescent-Leaf mutant, the seedlings and new leaves of which begin as albino, then gradually accumulate chlorophyll until they become green with age, is controlled by recessive alleles at a single locus. These two mutants were hybridized to evaluate potential allelism at the causal loci. The resulting F₁ was a normal green plant. However, segregation in the F₂ and F₃ populations suggest that the Albino Virescent parent used in crosses was homozygous recessive for one of the two Lutescent loci, resulting in a segregation ratio of 9 (Green): 4 (Albino Virescent): 3 (Lutescent) in the F₂ population. Bulk segregant analysis (BSA) was carried out on pooled leaf tissue to identify the region(s) responsible for these simply inherited mutations. A strong signal was identified on Chr.10 for Albino Virescent-Leaf spanning a ~2Mb region. The Lutescent-Leaf trait mapped to a diffuse region on Chr.02, encompassing essentially the entire chromosome. KASP markers were designed to validate the BSA results from the F₂ individual plant samples.