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Session Name: Session 7: Oral, Physical Sciences and Biological and Ag Sciences

Presentation Time: 2:00 pm

Presentation Type: 10-min oral presentation w/ a 4-min Q&A

Project Title: Understanding developmental and molecular changes that trigger floral organ abscission in Aquilegia coerulea

Abstract: While the flowers may be the most visually charismatic aspect of the plants, they are also highly complex. Post maturation, the flower organs shed through a highly regulated process of organ abscission. Genetic studies on organ abscission of economically important flowering plants are in their infancy. Using Aquilegia coerulea (Columbines) as a model system, the proposed project goals are to understand the following: 1) Morphological and developmental changes underlying floral organ expansion and maturation. 2) The genetic basis of floral organ maturation and identification of potential candidate genes that can delay the process of organ shedding. We are using histology and scanning electron microscopy to determine the exact timing of the abscission zone (AZ) formation in floral organs. The AZ area from the receptacle, petals, and sepals from young and matured flowers is collected for RNA-seq. The proposed experiment will help to capture differentially expressed genes in the early and late developmental stages of floral organs. Identified potential candidate genes can be tested through functional genetic studies in the future.