

Abstract Submitted  
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**The efficient flight of *Ruellia ciliatiflora* seeds** DWIGHT WHITAKER, FRANKLIN MARSH, PETER CHEN, DAVID VEJAR, Pomona College, PATRICK BABB, JOSUE CASTILLO, SABRINA CORDERO, MAHARANI LUMBAN-GAOL, IRLANDA MORA, TANIA PARTIDA, JULIAN PINEDA, AARON RODRIGUEZ, Pomona College Academy for Youth Success (PAYS) — The seeds of *Ruellia ciliatiflora* are small disks measuring approximately 3 mm in diameter and 0.3 mm in height, which are launched from exploding fruits at speeds exceeding 10 m/s. The seeds fly with backspin such that the axis of symmetry is parallel to the ground. With rotation rates that exceed 1 kHz they keep an aerodynamic profile and move through the air with a extremely low drag. Using high-speed video we have learned that the drag coefficients for these flying seeds can measure less than 0.01 for those launched with the least wobble. To understand the role of seed morphology and rotation rate on the flight of the seeds, we will also present work using 3D printed models of the seeds for studies in wind tunnels. Three-dimensional models are created by photographing seeds from many angles and inferring a shape using commercial software, which also creates a printable model. These studies should help guide work that compares explosions from fruits within the Acanthaceae family to which *R. ciliatiflora* belongs. This family consists of over 2000 species with exploding fruit with diverse habitats and morphologies.

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