Explosive Study Reveals How Squirting Cucumber Engorges And Erupts, Shooting Seeds 10 Meters

The squirting cucumber at work. The mechanics behind this suggestively named plant's bizarre seed distribution have now been revealed in explosive detail, as scientists at the University of Manchester and the University of Oxford have revealed how it engorges with fluid before erupting in a way not seen anywhere else in the plant kingdom.

The squirting cucumber, *Ecballium elaterium*, has evolved to overcome the need for wind to disperse seeds – something that's crucial for the distribution of many other plant species. Instead, when the time comes to give life to the next generation of wee cucumber seedlings, it yeets them around 10 meters (32.8 feet) from the parent plant in a high-speed pressurized jet. Impressive, but the Chinese witch hazel has it beat for distance.

As well as ensuring they can't leach off the parent plant well into their 30s, the explosive approach to dispersal also reduces overcrowding and competition between offspring. An impressive adaptation, and one that got scientists wondering how on Earth they do it.

To reveal the mechanism, the team employed the help of a high-speed camera that could capture up to 8,600 frames per second, and took measurements of squirting cucumber plants before and after seed ejection. They also created a time-lapse monitoring the plants in the lead-up to dispersal day, and even took CT scans.

Their observations revealed four key stages to the squirting cucumber's process: first, the fruits engorge as they fill with a delicious-sounding "mucilaginous" fluid, and this happens in the weeks leading up to seed dispersal.

When it's just days before launch, some of the fluid spreads to the stem, causing it to become – and I'm quoting the press release here – "longer, thicker, and stiffer". This step is crucial as it changes the angle of the plant from near vertical to around 45 degrees, the ideal launching angle.

When the big day finally arrives, it kicks off with a rapid recoil of the tip of the stem away from the fruit, sending the fruit Catherine-wheeling as it rotates in the opposite direction. This stage is particularly remarkable, as the squirting cucumber is thought to be the only species in the plant kingdom that does this.

At last, the seeds go flying, with the earliest to get squirted traveling the furthest. When all is said and done, there's a distribution of offspring between 2 to 10 meters (6.6 and 32.8 feet) from the parent plant, spat out across a ring-shaped area.

The squirting cucumber has been studied since the time of Pliny the Elder (AD 23/24 – AD 79) who wrote of it: "Unless, to prepare it, the cucumber be cut open before it is ripe, the seed spurts out, even endangering the eyes".

From blinding Roman authors to being so widespread in the modern era it's considered a weed, it seems this curious cucumber has adapted a remarkably effective method of seed dispersal, and unlike everything else about it, that's no laughing matter.

The study is published in the journal, ahem, PNAS.