|  |  |
| --- | --- |
| Project Number: | 2022-47 |
| Project Title:  | Exploitation of weed species extracts as an effective and environmental friendly strategy to control insects and deer in soybean |
| Organization:  | Mississippi State University |
| Project Lead Name: | Te Ming (Paul) Tseng |
| Report Period: | June 15, 2025 |
| We are currently working on optimizing the nanoparticle formulation of our sicklepod-derived anthraquinone repellent using poly(lactic-co-glycolic acid) (PLGA) as the carrier. The goal is to improve particle uniformity, stability, and coating efficiency so that the formulation adheres well to the leaf surface and holds up under stress. So far, we have tested a few polymer-to-core ratios and are seeing promising results with the encapsulation method we are using, but the process still needs some fine-tuning. Once the formulation is finalized, we will move on to the treatment phase. Soybean plants are being grown in a controlled growth chamber and will be sprayed with the repellent once they reach the V4 growth stage. The application will be done using a calibrated spray system to make sure coverage is consistent. The chamber conditions are also being set up to simulate stress factors like heat, humidity, and mist to mimic real field conditions. This setup will allow us to evaluate how well the repellent holds and performs under environmental stress. |