yOIL

2020 Finalist Team Guide

PRESENTER:

Sara Far [Sara | Far]
Plant Biology (U)
University of Calgary

As a plant biology major, I'm extremely excited about sustainable agriculture. I think that deep within their cellular mechanisms, plants hold the secrets that will solve many of society's issues in the future. The diversity of plant life is awe-inspiring; they are the primary trophic level, and the diversity of the group of organisms can be harnessed in ways we haven't even imagined yet. I want to be part of that. I think it's what drew me to synthetic biology and its application to industrial problems. What excites me the most about yOIL is how it can validate the potential of designed biological machinery to an industry where circularity doesn't really exist. Once I complete my bachelor's degree, I will be doing my graduate studies in biomedical technology at the University of Calgary, and plan to continue developing new, industrially relevant biotechnology. Aside from my adventures in biotech, I like to spend my time practicing and performing violin. I've been fortunate enough to tour Europe and share the stage with immensely talented musicians, performing compositions by my main man Tchaikovsky.

OTHER TEAM MEMBERS:

Juan Sebastian Alvarez
Chemical Engineering (U)
University of Calgary

Andrew Symes
Agricultural Sciences (U)
Statistics

Manimeldura Nimaya De Silva
Biomedical Science (U)
University of Calgary

Sarah Walker
Computer Science (U)
University of Calgary

TEAM BIO

As of April 2020, our team has only been working together for just over a year. We first met over our mutual interests in science and tinkering, coming together to form the 2019 University of Calgary iGEM team. Summer barbecues and late nights at the karaoke bar definitely played a part in breaking down the barrier between the team members. The new members were not only chosen for our technical ability and know-how but also for how they thought our collective personalities would fit together and synergize. Considering that a year later, after iGEM has wrapped up, we are still pursuing our project as a team; I would say they did a pretty good job. We first saw the application for the WEGE Prize at a serendipitously opportune moment. We had just come off our historical win at iGEM, becoming the first Canadian team in the competition's history to place in the top three, and we were discussing how to continue this project forward. The WEGE Prize showed up on our radar and right away we knew that winning WEGE would be a game changer for us. Winning the WEGE Prize would give us the funds needed to incorporate, file patents and begin to scale up our circular solution at an industrially implementable scale. Our biggest challenge has been transitioning from being a group of researchers to becoming a group of business people, all while juggling our busy school schedules and busy lives. But we would never trade in the long days and late nights for anything because we know competitions like WEGE focus the raw energy each of us have into a common goal. We are all immensely proud of what we have been able to accomplish with the opportunities presented to us and we're so excited to see what's next for yOIL.

SOLUTION SUMMARY

yOIL is developing a biological system for addressing the problems Canada's unpredictable climate and short growing season pose to the industry, namely excess chlorophyll from seeds diluting the quality of the oil while raising production costs, and a fungus that leaches nutrients from canola crops in cold and humid conditions. The system removes chlorophyll from the oil and repurposes it into an antifungal treatment for the fungus, reducing costs and waste while increasing quality.