

Ishan Bhatia

Cell: 408-601-8975 Email: ishan.bhatia.999@gmail.com



OBJECTIVES

Describing activities and projects over the past 3 years to facilitate further research and job opportunities.

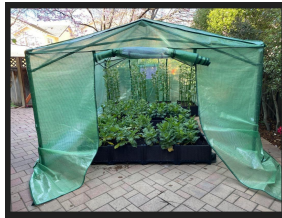
PROJECTS

Experimentation on Aphids using *Cordyceps militaris*

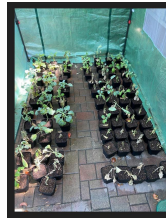
Founder and Principal Investigator; Cupertino, CA

Aug 2020 - Present

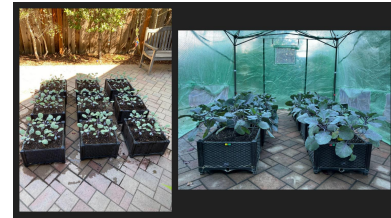
- Grew four generations of plants in greenhouses for controlled experimentation
 - 1st generation: 36 kohlrabi and 36 cabbage plants
 - 2nd generation: 80 fava bean plants
 - 3rd generation: 72 cabbage plants
 - 4th generation: 48 red cabbage plants



1st + 2nd generations



3rd generation



4th generation

- Constructed four greenhouses and 16 containers to house all plants
- Cultivated aphid colonies on cabbage plants to test effectiveness of *Cordyceps militaris*
- Maintained a controlled environment of two groups of 24 red cabbage plants
- Ensured a smooth experimentation process by organizing testing procedures
- Designed two apparatuses for camera to produce consistent documentation
- Counted 11,270 aphids to establish the mortality rate caused by *C. militaris*
- Wrote a 26-page research paper to verify *Cordyceps militaris*' use as a pesticide



Before/after *C. militaris* spraying



Cordyceps militaris sprays

Ishan Bhatia

Guest Speaker at College Horticulture Class

Diablo Valley College; Pleasant Hill, CA; Prof. Michelle Eyestone

April 2022

- Presented 37-minute speech with Q&A to horticulture class of 50 students
- Illustrated *C. militaris*' insecticidal mechanisms with diagrams
- Showcased novel experiment verifying that *Cordyceps militaris* controls aphids
- Shared detailed 3-year experimental planning process
- Provided biological context of fungi
- Inspired college students to conduct further testing on other insects
- Incorporated *Cordyceps militaris* and entomopathogenic fungi into OH-101 curriculum
- Reinvited to speak at Diablo Valley College OH-101 class in fall 2022

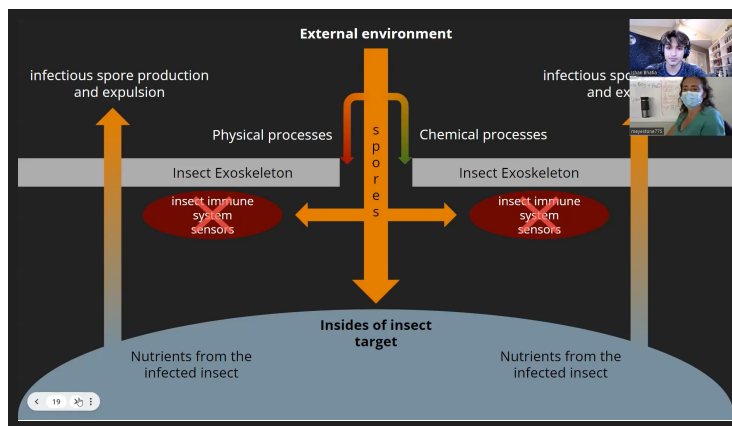


Diagram explaining how *Cordyceps militaris* works

TEDx Speaker: “There Isn’t MUSH ROOM For Harmful Pesticides”

TEDxMeritAcademy; Rio Theatre, Santa Cruz, CA; Susan Tatsui-D’Arcy

Nov 7, 2021

- Presented a 16-minute speech promoting *Cordyceps militaris* as a safe, effective pesticide
- Warned about health risks (e.g. telomere length reduction) posed by harmful commercial pesticides
- Contributed to TEDx Countdown, a global initiative designed to develop solutions to the climate crisis generating 100+ million views worldwide



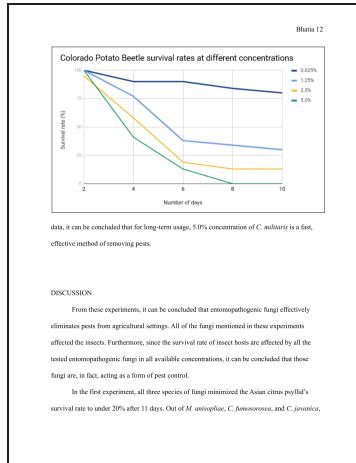
Speaking at the 650-seat Rio Theatre

Ishan Bhatia

Researcher of *Cordyceps militaris* as a pesticide

Founder and Principal Investigator; Cupertino, CA
Sept 2019 - Aug 2020

- Wrote a [19-page literature review](#), “Entomopathogenic Fungi as an Alternative to Harmful Commercial Pesticides”
- Explored three species of fungi and their role in pest control
- Collaborated with mycologists at Merritt Community College
- Attended San Francisco Mycological Society convention and learned about growing techniques involving fungi



population within ten to eleven days, and some species (such as *P. fumosorosea*) can eliminate insects at a low concentration, proving its high performance and efficiency as a pesticide. Furthermore, these experiments shed light on biopesticide alternatives for traditional commercial pesticides which pose a threat to our health.

Growing these fungi are not relatively difficult either. With proper research and experimentation, one can obtain spores of these species in just a few weeks. Furthermore, one can also obtain these spores online and apply them to plants that are being affected by pests. Usually, these mycopesticides are in the form of spore sprays, but they can also be grown near the plants. As such, entomopathogenic fungi not only provide an effective and efficient alternative to harmful pesticides, but they are relatively easy to obtain, cultivate, and use.

Additionally, these mycopesticides do not harm the environment like chemical pesticides do. These mushrooms have evolved to live with non-host organisms and are therefore safe for humans and other organisms besides insects living in the ecosystem where the fungi is applied. Furthermore, the method mycopesticides use to attack insects ensures that one application of the insecticide is sufficient for a long period of time since the fungal spores are expelled to cover a large area after a victim is decimated. In other words, as the fungi kill insects, its spores are continuously distributed to kill even more insects.

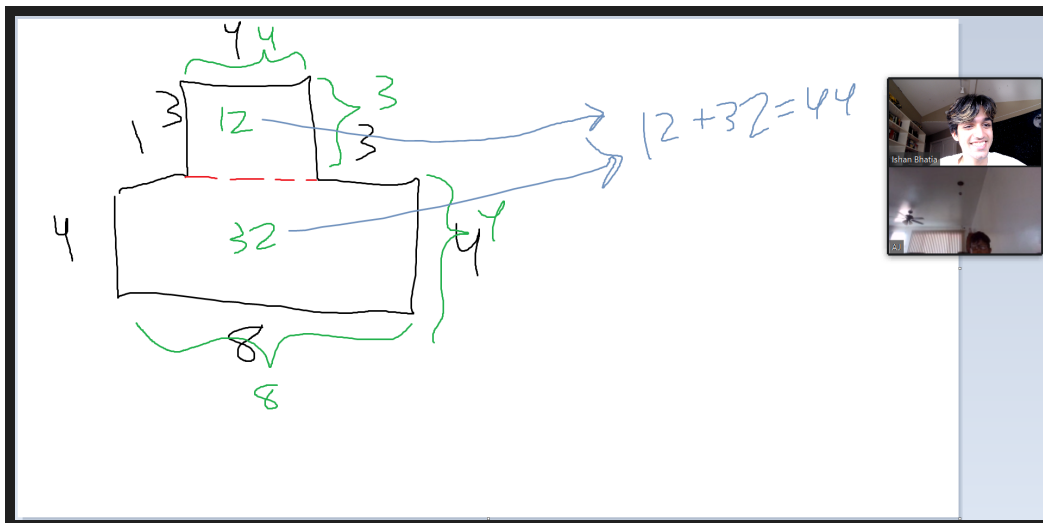
Overall, entomopathogenic fungi presents a promising, effective and efficient solution to chemical pesticides. It impacts a wide variety of insect hosts, offers a powerful, complex method to attack and eliminate an insect population, and has a harmonious relationship with the wildlife around it. Therefore, these mycopesticides should be considered as a replacement for commercial pesticides for gardening and agriculture.

COMMUNITY SERVICE

Math and English Tutor

Learn in Shelter; San Jose, CA; Rohit Malhotra
June 2020 - Present

- Taught elementary school student for over 2 years (1st to 3rd grade)
- Increased student's foundation in math to grade-level proficiency
- Created practice worksheets with instructional diagrams and tutorials
- Used visual and tactile aids



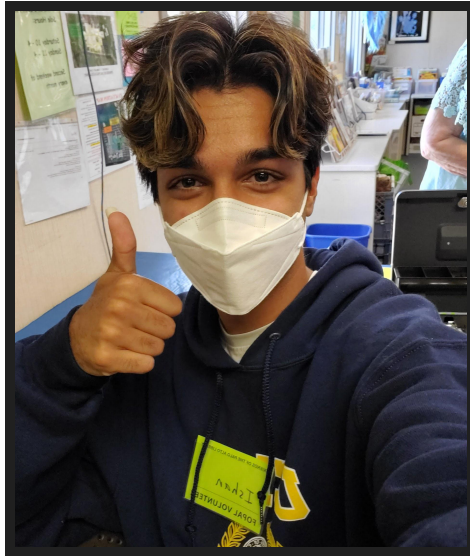
Illustrating how to find the volume of complex shapes

Ishan Bhatia

CSF Volunteer

Lynbrook California Scholarship Federation Club; San Jose, CA; Jeremy Kitchen
Aug 2019 - Present

- Advised students at tech challenge events
- Evaluated age-appropriate books for 1st to 5th graders at school book fairs
- Created get-well cards to support children, seniors, and essential workers
- Weeded school gardens for vegetable-growing projects



Volunteering at a local community center

Habitat Restoration Helper

Grassroots Ecology; San Jose, CA
Aug 2018 - January 2019

- Cleared invasive species of plants from a native environment
- Tested water quality and nutrient levels of local creeks
- Protected nature reserves by cleaning trash from the local habitat
- Served 32 hours

CLUBS

California Scholarship Federation Member

Lynbrook High School; San Jose, CA; Jeremy Kitchen
August 2019 - Present

- Ranked 3rd out of 207 members for most volunteer hours
- Served 116.3 hours

Ishan Bhatia

Society of Psychology and Sociology Member

Lynbrook High School; San Jose, CA; Terri Fill

August 2021 - April 2022

- Explored human behavior and its impact on interpersonal relationships
- Studied how harmful ideas and values influence entire societies

Pre-Med Club Member

Lynbrook High School; San Jose, CA; Linnea Romander

September 2020 - October 2021

- Researched how COVID-19 vaccines worked during the pandemic
- Explored major medical specialities
- Learned about triage and surgical procedures

Robotics Club Member

Lynbrook High School; San Jose, CA; David Giandomenico

August 2019 - January 2020

- Developed computer-aided design skills using Autodesk Inventor
- Designed pistons and rotating components for robot to be used in competition

EMPLOYMENT

Administrative Assistant

Aurora Financial Services; Torrance, CA; Chris Arora and Nita Arora

June 2022 - Present

- Scanned and shredded old tax documents
- Destroyed USB drives with confidential client information for security
- Disassembled client binders and transferred tax documents
- Organized and sorted documents by date and event

Ishan Bhatia

MUSIC

Principal French Horn

California Philharmonic Youth Orchestra; Saratoga, CA; Anh Tuan Huyhn and Byung Kim
July 2019 - Present

- Led French Horn section and coordinated with other principal brass players
- Broadcasted annual Winter Concert at Cathedral Basilica on local TV news
- Performed 7 concerts at McAfee auditorium, California Theatre, and Cathedral Basilica



EDUCATION

Lynbrook High School (4.46 GPA)

San Jose, CA
August 2019 - June 2023 (future graduation date)

Skyline College (5.0 GPA)

San Bruno, CA
June 2021- Present
United States History II (HIST-202)
General Psychology (PSYC-100)

Merit Academy (4.83 GPA)

Soquel, CA
May 2020 - August 2021(Spring 2020 during COVID and Summer 2021)
Honors Biology 2
Honors Precalculus 2
Honors Japanese 2
English 9
Honors Physics 1
Honors Physics 2

Ishan Bhatia

SKILLS

Computer and Programming Skills:

C++, Java, Batch, Python, Arduino, C#

Office Skills:

Office Suite, Google Drive, Fellowes 225Ci Shredder PaperPort Scanner Software, Accounting, Office Organization

Film Making Skills:

Sony Vegas Pro, Adobe Premiere Pro

Musical Skills:

French Horn, Trumpet, Tenor Saxophone

INTERESTS

Singing, reading, playing French Horn, assembling computers, hiking, listening to music, conversing with friends, video editing, hairstyling, speedrunning video games.