



SHARDA
UNIVERSITY
Beyond Boundaries

**SHARDA SCHOOL OF
AGRICULTURAL
SCIENCES**



COURSE

**Cultivation Practices and
Nutritional Aspects of
Microgreens
(VAA004)**

**VALUE ADDED
COURSE BROCHURE-30 HRS
2024-25**

ABOUT THE UNIVERSITY

Sharda University is a leading Educational Institution based at Greater Noida, Delhi NCR. The University has established itself as a high quality education provider with prime focus on holistic learning and imbuing competitive abilities in students. The University has multi-discipline campus, spread over 63 acres in the NCR and is equipped with world class facilities.

ABOUT SCHOOL

Sharda School of Agricultural Sciences is dedicated in providing high quality education and training in the field of Agricultural Sciences following curricula underpinning multidisciplinary approach by integrating technological advancements. The School strives to meet international standards as well generate technologies and motivated trained human resource to foster sustainable agricultural production, protection and processing systems as envisaged by Indian Council of Agricultural Research, UGC and the NEP-2020 of the Government of India. The School currently offers 4-year B.Sc. (Hons.) Agriculture, 2-year M.Sc. (Agriculture) Agronomy and Ph.D. degree programmes.

ABOUT COURSE

Microgreens are defined as tender immature greens, produced from the seeds of vegetables and herbs, having two fully developed cotyledon leaves with or without the emergence of a rudimentary pair of first true leaves. These can be grown in a variety of substrates like vermiculite, coco-peat, perlite, liquid solution -based media amongst many others, apart from requirement of light. They are highly appreciated for their aroma, tender texture, vivid color, flavor, rapid production as well as high yield and nutritional content. Their high nutritional qualities are mainly due to presence of phytochemicals and other bioactive compounds along with their antioxidant capacities. The concentration of bioactive compounds found in microgreens and even sprouts is reported to be much higher than their mature counterparts. Enhanced nutrient content and high yield obtained in less duration of time and in a cost-effective manner has accelerated cultivation of microgreens. Due to the nutritional content, inclusion of microgreens in diet has several health benefits as well. These attributes of microgreens have helped them gain attention and popularity amongst different classes in the society. This course offers a thorough knowledge of recent trends and importance of cultivation of a variety of microgreens and an understanding of their nutritional aspects. The course will enhance the thinking skills of students for entrepreneurship and employability.

Practical Training

- Cultivation strategies for growth of microgreens in different substrates
- Phytochemical profiling of microgreens

Teaching methods

- Presentations with lectures, photographs, videos, etc in physical mode
- Interactions and demonstrations

COURSE SCHEDULE

Day	Content	Duration
1	Microgreens – History, properties, and applications, Requirements for cultivation of microgreens	6 h
2	Microgreens- Phytochemical profiling and health benefits	6 h
3	Utilisation of different crops for microgreen production; Shelf-life of microgreens	6 h
4	Limitations to production of microgreens and strategies to overcome	6 h
5	Entrepreneurship and future opportunities	6 h
Total		30 h

RESOURCE PERSON

Dr. Astha Gupta

Dr. Astha Gupta is working as Assistant Professor in School of Agricultural Sciences, Sharda University, Greater Noida, Uttar Pradesh, India. She worked as Principal Investigator (National Postdoctoral Fellow: 2018-2020) in SERB-DST funded project “Quantitative Trait Loci mapping for agricultural important traits in safflower (*Carthamus tinctorius* L.)” at Department of Botany, University of Delhi, North Campus, New Delhi. She has earned her Ph.D. in (Biological Science) on

title “Mapping quantitative trait loci for traits related to biomass in Arabidopsis thaliana” from Academy of Scientific and Innovative Research–National Botanical Research Institute (AcSIR-NBRI), Council of Scientific and Industrial Research (CSIR), Lucknow, Uttar Pradesh, India. She has obtained her M.Sc. from the Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India. She has published 12 research articles, 1 book, 4 book chapters, 2 review article and training manual in reputed journals.

School: SSAS Program: B.Sc. (Hons.) Agriculture Branch: Agricultural Sciences		Batch: 2022-26 Current Academic Year: 2024-25 Semester: VI	
1. Course Code	VAA004		
2. Course Title	Cultivation Practices and Nutritional Aspects of Microgreens		
3. Credits			
4. Contact Hours (L-T-P)	30 Hours		
Course Type	Non-credit Value added course		
5. Course objective	To provide basic and applied training in cultivation practices and nutritional aspects of microgreens		
6. Course Outcomes	CO1: The students will be able to know the history, properties, and applications of microgreens CO2: The students will be able to study growth requirements of microgreens CO3: The students will be able to carry out cultivation of microgreens CO4: The students will be able to examine shelf-life, limitations to production of microgreens and strategies to overcome CO5: The students will be able to understand the utility of different crops to produce microgreens CO6: The students will be able to evaluate the phytochemical profile of various microgreens		
7. Course Description	This course will intensify the knowledge about recent trends and importance for the cultivation of different microgreens and an understanding of their nutritional properties.		
8. Outline syllabus			CO Mapping
Unit 1	Introduction to microgreens		
A	History		CO1
B	Properties		CO1
C	Applications		CO1
Unit 2	Growth Requirements		
A	Seed selection		CO2, CO3
B	Substrates		CO2, CO3
C	Light/temperature/humidity		CO2, CO3
Unit 3	Microgreen production		
A	Shelf-life		CO4
B	Limitations		CO4
C	Strategies to overcome limitations		CO4
Unit 4	Utilization of various crops for microgreen production		
A	Vegetable and cereals		CO3, CO5
B	Medicinal herbs		CO3, CO5
C	Legumes		CO3, CO5
Unit 5	Phytochemical profiling		
A	Pigment		CO1, CO6
B	Antioxidant		CO1, CO6
C	Vitamin		CO1, CO6
Mode of examination	Presentation and Viva-Voce		