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Microalgal biotechnology is my primary research interest. Isolation, characterisation and cultivation of microalgae; nutraceuticals, bioactive molecules and value added products from microalgae; microalgae for nutraceutical and food applications; microalgae for alleviation of malnutrition and life style disorders; understanding the stress response in microalgae; and microalgae based food products are important components of research in my lab.

**Highlights of recent research activities**

- Effect of various culture conditions and stresses on fatty acid profile of the indigenous microalgal isolates are being studied, with special reference to poly unsaturated fatty acids (PUFAs).
- Various microalgae are being studied for their bioactive properties using *in vitro*, *in vivo* models.
- Various seaweeds are being studied for their food applications.
- A germplasm of indigenous microalgal isolates from water bodies of various parts of India has been established for evaluation of these microalgae for food and nutraceutical applications.
- A method to control rotifers and grazers was developed, enabling the successful scale up and long term cultivation of selected freshwater microalgae in open raceway ponds.
- *Spirulina* based food products *viz.,* "Nutra Chikki with added *Spirulina",* "*Spirulina* Choco Cereal Bar" , "*Spirulina* beverages/beverage mix"; "*Spirulina* yogurt"; "*Spirulina* flakes" have been developed to impart the nutritional benefits of microalga *Spirulina,* especially to women and children.

**Publications and Patents**

- Research publications and book chapters : 45
- Book Chapters : 07
- Patent filed. : 01

**Number of Ph.D. Students Currently Guiding :** Seven

**Ten Recent Publications :**

1. Swarnalatha, G.V., Sarada, R. **Chauhan, V.S.** (2022) A $CO_2$ rich environment mediated amelioration of nutritional stress effect in an indigenous freshwater green microalga *Desmodesmus* sp. *Biomass Conversion and Biorefinery,* (Published online in November 2022).
2. Pathikkal, A., Puthusseri, B., Peethambaran, D., Rudrappa, S., **Chauhan, V.S.** (2022) Folate derivatives, 5-methyltetrahydrofolate and 10-formyltetrahydrofolate, protect

BEAS-2B cells from high glucose–induced oxidative stress and inflammation. *In Vitro Cellular & Developmental Biology – Animal*, 58: 419-428.

3. Seemashree, M.H., **Chauhan, V.S.,** Sarada, R. (2022). Phytohormone supplementation mediated enhanced biomass production, lipid accumulation, and modulation of fatty acid profile in *Porphyridium purpureum* and *Dunaliella salina* cultures. *Biocatalysis and Agricultural Biotechnology*, 39 : 102253.
4. Neenu, R., Madhubalaji, C.K., Rashmi, V., **Chauhan, V.S.**, Dharmesh, S.M., Sarada, R. (2022). Prevention and amelioration of erythrocyte instability observed under deficiency of vitamin $B_{12}$ alone or combined with micronutrient limitation through dietary supplementation with *Chlorella* and *Spirulina*. Indian Journal of Experimental Biology, 60 : 7-16.
5. Madhubalaji, C.K., Rashmi, V., **Chauhan, V.S.**, Sarada, R. (2021). The effect of Chlorella biomass supplementation on enhancement of vitamin B12 status in Wistar rats. *Journal of Food Science and Technology*, 58(11): 4270-4281.
6. Madhubalaji, C.K., Mudliar, S.N., **Chauhan, V.S.**, Sarada, R. (2021). Evaluation of drying methods effect on nutritional constituents and antioxidant activity of Chlorella vulgaris cultivated in outdoor open raceway pond. *Journal of Applied Phycology,* 33: 1419-1434.
7. Sijil, P.V., Vinaya R. Adki, Sarada, R. **Chauhan, V.S.** (2020) Stress induced modifications in photosystem II electron transport, oxidative status, and expression pattern of acc D and rbc L genes in an oleaginous microalga *Desmodesmus* sp. *Bioresource Technology,* 318: 124039.
8. Sijil, P.V., Vinaya R. Adki, Sarada, R. **Chauhan, V.S.** (2019) Strategies for enhancement of alpha-linolenic acid rich lipids in *Desmodesmus* sp. without compromising the biomass production. *Bioresource Technology,* 294: 122215.
9. Patel, P., Jethani, H., Radha, C., Vijayendra, S.V.N., Mudliar, S.N., Sarada, R., **Chauhan, V.S.** (2019) Development of a carotenoid enriched probiotic yogurt from fresh biomass of *Spirulina* and its characterization. *Journal of Food Science and Technology*, 56 (8) : 3721-3731.
10. Sijil, P.V., Sarada, R. **Chauhan, V.S.** (2019) Enhanced accumulation of alpha-linolenic acid rich lipids in indigenous freshwater microalga *Desmodesmus* sp,: the effect of low-temperature on nutrient replete, UV treated and nutrient stressed cultures. *Bioresource Technology* 273 :404-415