

## PROCESS FOR THE PRODUCTION OF LUTEIN

## **BRIEF DESCRIPTION:**

Lutein, is a xanthophyll carotenoid essential for protecting the cellular components of vital organs from oxidative damage. Lutein is a vital macular pigment in the retina of the eye and protects the eye from the ionizing effect of blue light. Lutein is present in higher plants and other photoautotrophic organisms like algae. NIOT isolated a fast growing, high biomass and lutein producing microalgal strain, C-Chlorella sorokiniana, optimized a custom designed culture media, culture methodology, harvesting technique and the purification of lutein to 90-95% purity and production of "Lutein" from marine Chlorella sorokiniana.

## PRODUCT DESCRIPTION:

The present process relates to a production of lutein from marine Chlorophyceae microalgae.

## The process includes

- Cultivating a marine Chlorophyceae microalgae Chlorella sorokiniana under cultivation conditions suitable for the production of lutein in a raceway or bubble column photobioreactor under phototrophic/ mixotrophic condition.
- Harvesting the cultivated microalgae using electroflocculation (patented).
- Rinsing the cultivated biomass free of salts with distilled water in centrifuge.
- Spray drying of algal biomass.
- Cell disruption prior to extraction of lutein.
- Alkaline treatment of algal biomass at 40°C for 30 min.
- Solvent extraction of crude lutein in percolators.
- Solvent removal using rotary evaporator and reuse of the solvent.
- HPLC quantification of the lutein content.
- Purification of lutein
- Re-dissolving in olive oil for storage of lutein
- Re-extraction in acetone and nitrogen purging

**Scale of Development:** Technology demonstrated and commercialized.

