3. SCOPE OF THE PRESENT STUDY

Marine algae are one of the most important marine living resources for food, feed and medicine since ancient times. The marine carotenoids can be found in marine brown seaweeds, macroalgae, diatoms, microalgae, and has remarkable biological properties. Numerous studies have shown that, carotenoids have considerable potential and promising applications in human health. Pigments has been linked to a variety of health benefits and have significant nutraceutical properties, anti-oxidant, anti-obesity, anti-cancer and anti-inflammation effect. The health benefits of these pigments have been demonstrated in cell culture models, human and animal trials as well. However, due to lack of awareness among the people especially in India, their multifunctional properties have not yet been exploited. With this on mind, the thesis has been framed on the screening, evaluation and characterization of bioactive pigment from seaweeds collected from Puducherry coast.

The broad objective of this research work involves the following,

- Analysis of the phytochemical, biochemical and pigment compositions of the collected seaweeds
- Screening for the potential seaweed through the evaluation of its anti-microbial and anti-oxidant properties
- Isolation and purification of bioactive pigment through silica gel column chromatography and thin layer chromatography and evaluation of the active fraction for anti-oxidant property
- Partial characterization of active fraction by UV-Visible spectroscopy, Fourier Transform Infra Red spectroscopy, High Performance Liquid Chromatography and Nuclear Magnetic Resonance
- Evaluation of anti-cancer activity through *in vitro* cytotoxicity assay (MTT assay) and DNA fragmentation.