

**ABUNDANCE OF MARINE PLANKTONIC CYANOBACTERIA
TRICHODESMIUM SPECIES (EHRENBERG 1830)
(FAMILY OSCILLATORIACEA) IN CEBU
HARBOR AND HILUTUNGAN CHANNEL,
CEBU, PHILIPPINES**

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Faculty of the
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**In Partial Fulfillment
of the Requirements for the Degree
MASTER OF SCIENCE IN BIOLOGY**

By


**ARNEL C. ARAÑA
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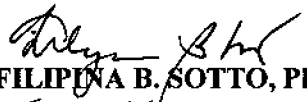
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This Thesis entitled "ABUNDANCE OF MARINE PLANKTONIC CYANOBACTERIA *TRICHODESMIUM* SPECIES (EHRENBERG 1830) (FAMILY OSCILLATORIACEAE) IN CEBU HARBOR AND HILUTUNGAN CHANNEL, CEBU, PHILIPPINES" prepared and submitted by ARNEL C ARAÑA in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN BIOLOGY has been examined and is recommended for acceptance and approval for ORAL EXAMINATION

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ABSTRACT

Trichodesmium species were collected from the four sampling stations established in Cebu Harbor and Hilutungan Channel from January to July 2000. *Trichodesmium erythraeum* and *Trichodesmium thiebautii* are the two species identified and both occurred in all stations. Among the stations, both species were abundant in Stations 3 (1,206 trichomes/l) and 4 (1,155 trichomes/l) than Stations 1 (732 trichomes/l) and 2 (841 trichomes/l). Stations 3 and 4 were located in Cebu Harbor, considered as eutrophic environment while Stations 1 and 2 both in Hilutungan Channel are categorized as oligotrophic waters. Given the 7-month study, no records of *Trichodesmium* species in January and February, initiation started in March, peaked in May and gradually declined in June and July. *Trichodesmium* population significantly showed spatial and temporal variations.

The physical and chemical parameters measured between the eutrophic and oligotrophic marine environment marked an appreciable variation. The density of *Trichodesmium erythraeum* and *Trichodesmium thiebautii* is significantly correlated with temperature, current speed, and salinity. No significant correlation was apparent between the different profiles in water transparency, amount of rainfall, wind velocity, cloud cover, dissolved oxygen, phosphate and iron. Other plankton identified in Cebu Harbor and Hilutungan Channel was dominated by diatoms (76.35%), dinoflagellates (12.79%) and 10.86% zooplankton.

To determine hourly variations in abundance of *Trichodesmium* population over a one-day cycle, one (1) 24-hour sampling was undertaken on April 14 and 15, 2000 at Stations 2 and 3. Between two stations, Station 3 has higher density of *T. erythraeum* (438 trichomes/l) and 52 trichomes/l for *T. thiebautii* compared to Station 2 with 125 trichomes/l for *T. erythraeum* and 25 trichomes/l for *T. thiebautii*. *Trichodesmium* species varied significantly with station and time. Observations showed that samples of night plankton at the surface are notably different from those taken during the day. *Trichodesmium* population density is higher during daytime when they fixed nitrogen available to other marine life.

In the light of this findings Hilutungan Channel can no longer be considered as oligotrophic marine environment as claimed by Bodungen et al (1985) fifteen years ago.

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