

DAFTAR ISI

ABSTRAK	i
ABSTRACT	ii
KATA PENGANTAR.....	iii
DAFTAR ISI.....	xi
DAFTAR GAMBAR	xiv
DAFTAR ISTILAH.....	xv
DAFTAR SINGKATAN DAN LAMBANG	xvi
BAB I PENDAHULUAN	1
1.1 Latar Belakang.....	1
1.2 Rumusan Masalah	4
1.3 Batasan Masalah	4
1.4 Tujuan Penelitian	5
1.5 Manfaat Penelitian	5
BAB II TINJAUAN PUSTAKA.....	7
2.1 Mikroalga.....	7
2.2 Fakto-faktor yang Mempengaruhi Pertumbuhan Mikroalga	7
2.2.1 Faktor Biotik	7
2.2.2 Faktor Abiotik	8
2.3 Mikroalga <i>Chaetoceros calcitrans</i>	9
2.3.1 Morfologi <i>Chaetoceros calcitrans</i>	9
2.3.2 Sifat Ekologi dan Fisiologi <i>Chaetoceros calcitrans</i>	10
2.3.3 Kandungan Nutrisi <i>Chaetoceros calcitrans</i>	11
2.3.4 Fase Pertumbuhan Mikroalga	12
2.4 Peningkatan Gas Rumah Kaca	14
2.5 Gas Karbondioksida (CO ₂)	16
2.6 Fotobioreaktor.....	18
2.7 Fotosintesis.....	19
2.8 Air Laut.....	21
2.9 Spektrofotometer	22
2.9.1 Spektrofotometer UV-Vis.....	23

2.10	<i>Haemocytometer</i>	26
2.11	Sensor SCD-41	27
2.12	Titration Asam-Basa	27
BAB III. METODE PENELITIAN		29
3.1	Waktu dan Tempat Penelitian	29
3.2	Bahan, Alat, dan Instrumentasi.....	29
3.3	Prosedur.....	29
3.3.1	Preparation of cultivation tools	30
3.3.2	Preparation of Artificial Seawater	30
3.3.3	Maturation and Cultivation (Inoculation) of Microalgae <i>Chaetoceros calcitrans</i>	30
3.3.4	Cultivation of Microalgae <i>Chaetoceros calcitrans</i>	30
3.3.5	Measurement of pH and Temperature	31
3.3.6	Measurement of Cell Density of Microalgae in Photobioreactor	31
3.3.7	Testing of Microalgae Absorption Capacity against CO ₂	31
BAB IV. HASIL PENELITIAN DAN PEMBAHASAN		33
4.1	Design of Closed System Photobioreactor	33
4.2	Preparation of Artificial Seawater	35
4.3	Inoculation and Cultivation of Microalgae <i>Chaetoceros calcitrans</i>	37
4.4	Measurement of Cell Density of Microalgae	40
4.4.1	Measurement of Cell Density Using <i>Haemocytometer</i>	40
4.4.2	Measurement of Cell Density Using UV-Vis Spectrophotometer	44
4.5	Measurement of CO ₂ Absorption	48
4.5.1	Measurement of CO ₂ Concentration with SCD-41 sensor	48
4.5.2	Measurement of CO ₂ Concentration with Acid-Base Titration	52
4.6	Relationship between Cell Density and CO ₂ Absorption	54
4.7	Measurement of Temperature of Microalgae <i>Chaetoceros calcitrans</i>	56
4.8	Measurement of pH of Microalgae <i>Chaetoceros calcitrans</i>	57
4.9	Efficiency of Closed System Photobioreactor Based on Microalgae <i>Chaetoceros calcitrans</i>	60
BAB V. KESIMPULAN DAN SARAN		62
5.1	Conclusion.....	62

5.2 Saran	62
DAFTAR PUSTAKA	63
LAMPIRAN A	72
LAMPIRAN B	73
LAMPIRAN C	75
LAMPIRAN D	76
LAMPIRAN E	78
LAMPIRAN F.....	79
RIWAYAT HIDUP PENULIS	83

