For dry weight method, the algal cultures were pelleted by centrifugation at 7500 rpm (Remi cooling microfuge) for 15 minutes. Cells were washed with glass distilled water, again centrifuged and dried in an oven for 24 hours or until constant weight.

pH AND CONDUCTIVITY MEASUREMENT

For all the trials, pH was measured using digital pH meter (Elico LI 120) and conductivity using digital Conductivity meter (Equiptronics EQ - 660A) respectively.

BIOMASS HARVESTING

When the microalgae are well grown a known volume of culture was harvested and added with diluted flocculent PHYCOFLOC and was evenly mixed for 20 minutes and left for overnight to settle in the bottom of the container. The next day the pellet was collected after centrifuging at 2000 rpm for 15 minutes. The pellet was dried and the algal biomass was collected.

3. Results and Discussion

Analytical data revealed that the effect of Glucose on the growth rate of *Chlorococcum* humicola and *Chlorella vulgaris* were studied under varied growth conditions. The growth rate was calculated and it was found to be 0.1868 in *Chlorella vulgaris* and 0.1955 in *Chlorococcum humicola* (Table 1 and 2) when grown under heterotrophic condition followed by the phototrophic and autotrophic conditions .But Lee (2004) stated that the maximum specific growth rate of algae, cultured heterotrophically on simple sugars, is lower than that of photosynthetic cultures. No contamination was detected during the growth. The result has showed that under heterotrophic condition the growth was appreciably higher when compared to autotrophic and phototrophic condition.

Jiří Doucha and K. Lívanský (2011) reported that pH of the culture decreased during cultivation as a result of increased production of carbon dioxide in the culture. After the end of growth caused by glucose consumption, the cells stopped CO_2 production, resulting in a pH increase.

The glucose uptake system of *Chlorella vulgaris* has been studied intensively. It is induced within 60 to 90 min following the supply of glucose in darkness Komor E, Tanner W (1974), Tanner W (1969) Kamiya and Kowallik (1987) have reported that the glucose uptake mechanism was light sensitive and, furthermore, that the uptake was inhibited in the light. However, Flor Martinez* and Maria Isabel Orus (1990) reported that the presence of glucose stimulated growth even in the presence of 2% CO_2 indicated that the cells were using glucose as a carbon source in the light. They concluded that the rate of glucose utilization in the light and dark was similar was further supported by the observation that the rate of respiration in the presence of glucose was similar in the light and dark.

Table 1: Effect of Glucose on the Growth rate and pH of *Chlorella vulgaris* under varying Growth Conditions

S. No	Growth Division Per Day			pH		
	Autotrophic	**Phototrophic**	**Heterotrophic**	**Autotrophic**	**Phototrophic**	**Heterotrophic**
1	-	-	-	7.3	7.1	7
2	0.2456	0.3333	0.3689	7.4	7.2	7.3
3	0.3473	0,2643	0.4213	7.4	7	7.4
4	0.2614	0.2146	0.3152	7.5	7.3	7.6
5	0.2222	0.2008	0.2555	8.1	7.4	7.61
6	0.1854	0.202	0.217	8.2	7.5	7.8
7	0.1598	0.1786	0.1868	8.2	7.6	8.3

Table 2: Effect of Glucose on the Growth rate and pH of *Chlorococcum humicola* under varying Growth Conditions

S. No	Growth Division Per Day			pH		
	Autotrophic	Phototrophic	Heterotrophic	Autotrophic	Phototrophic	Heterotrophic
1	-	-	0	7.1	7.01	7.1
2	0.5849	0.447	0.3608	7.3	7..03	7.2
3	0.3715	0.3137	0.3112	7.4	7.54	7.3
4	0.2724	0.2497	0.2699	8	7.6	8.1
5	0.2196	0.2274	0.2222	8.6	8.2	8.4
6	0.1935	0.2093	0.2185	8.8	8.5	8.5
7	0.1669	0.18	0.1955	9	9.2	9.3

Biochemical analysis

The biomass obtained was analysed for carbohydrate, protein, lipid, fatty acid and amino acid profile. From the data it is inferred that the level of carbohydrate (31.56 g) and protein content (23.23g) drastically increased in heterotrophic condition of ***Chlorella vulgaris.*** But the Lipid content (0.0971 g) was increased in phototrophic condition. The level of **Palmitic acid (0 .0034 mg)**, vitamin content and amino acid content was increased in heterotrophic condition of ***Chlorella vulgaris.*** The level of protein, fatty acid, vitamins and amino acid content was increased in heterotrophic condition of ***Chlorococcum humicola.*** **(Refer Fig 1 to 8)**

4. Conclusion

In the present study, it was concluded that ***Chlorococcum humicola*** was able to grow well in heterotrophic condition with glucose when compared to *Chlorella vulgaris* in both phototrophic and heterotrophic conditions. The growth was much more than the autotrophic condition. Due to glucose utilization the production of biomass of the microalgae can

be increased. Biochemical analysis revealed that Protein and fat content was raised in heterotrophic condition in the case of *Chlorella vulgaris.*The level of carbohydrate content, protein content, fatty acid content and Amino acid compound content is drastically increased in heterotrophic condition of *Chlorococcum humicola.*

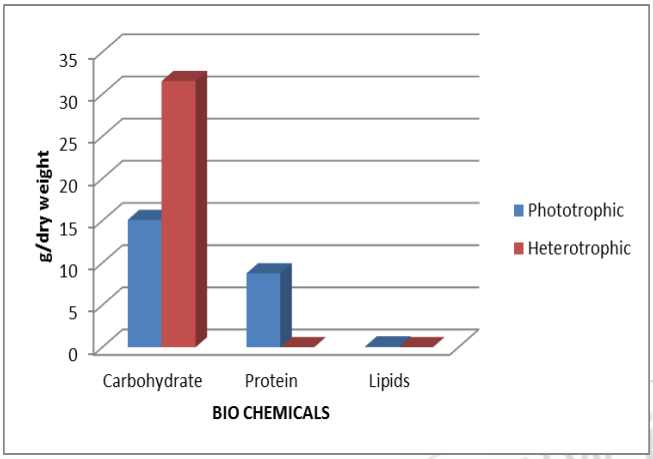

Figure 1: Effect of Glucose on the Composition of Biochemical Components in *Chlorella vulgaris*

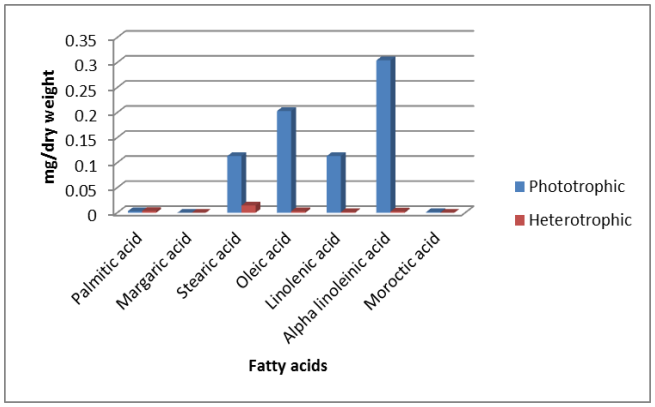

Figure 2: Effect of Glucose on the Composition of Fatty Acids in *Chlorella vulgaris*

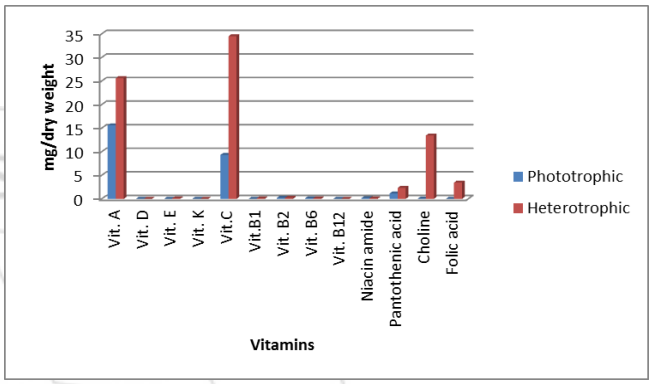

Figure 3: Effect of Glucose on the Composition of Vitamins in *Chlorella vulgaris*

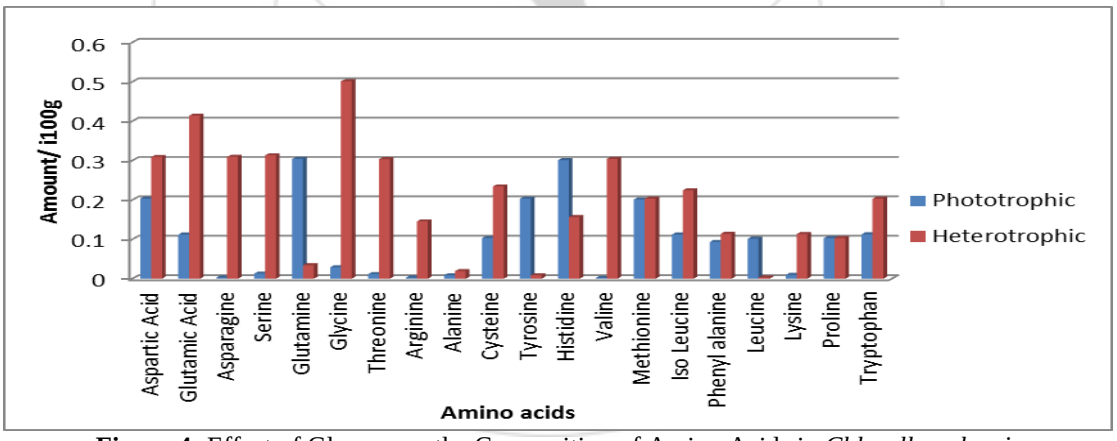

Figure 4: Effect of Glucose on the Composition of Amino Acids in *Chlorella vulgaris*

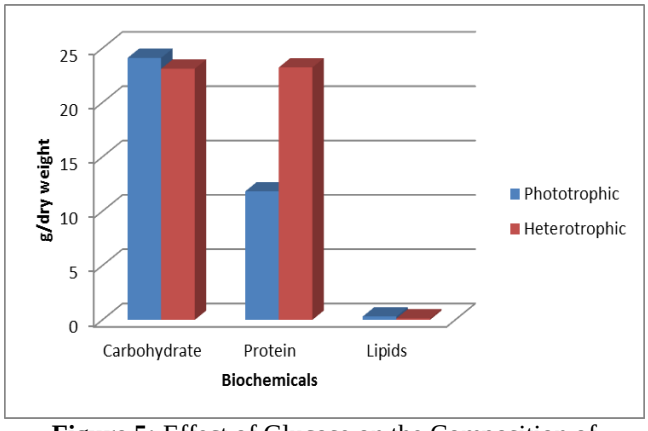

Figure 5: Effect of Glucose on the Composition of Biochemical Components in *Chlorococcum humicola*

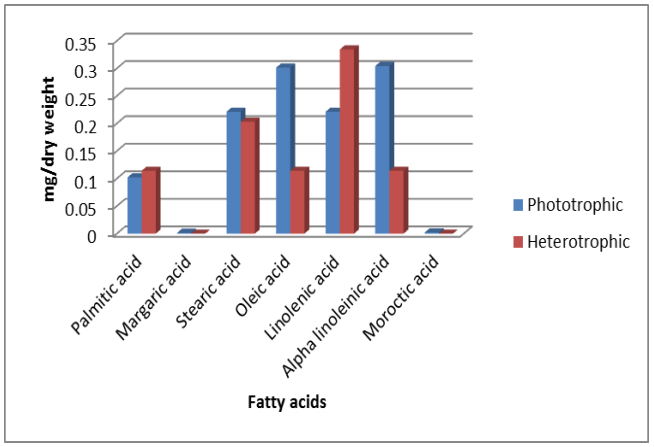

Figure 6: Effect of Glucose on the Composition of Fatty Acids in *Chlorococcum humicola*

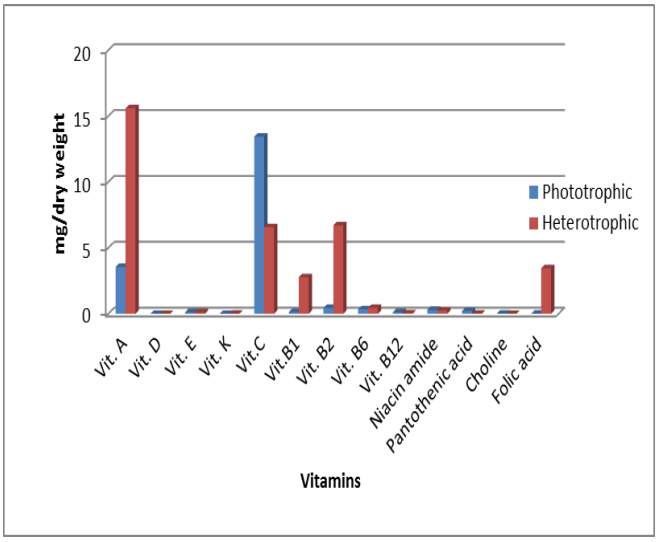

Figure 7: Effect of Glucose on the Composition of Vitamins in *Chlorococcum humicola*

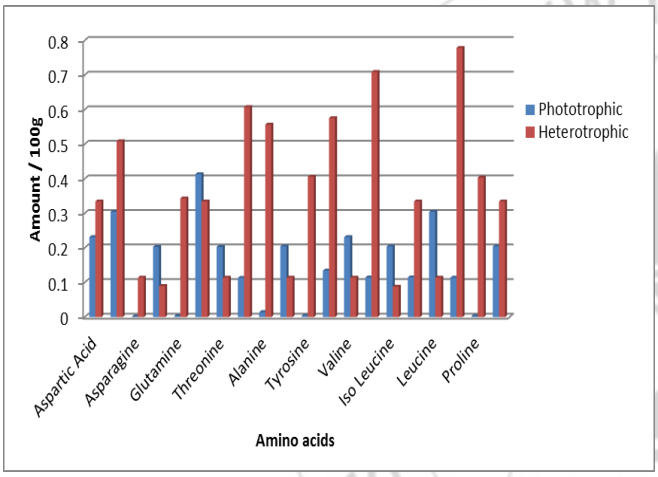

Figure 8: Effect of Glucose on the Composition of Amino Acids in *Chlorococcum humicola*

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