What is claimed is:

1. A method for aerobic, heterotrophic cultivation of a high density culture of a *Chlamydomonas* species comprising:

obtaining an inoculum of a substantially pure culture of a *Chlamydomonas* sp. at a concentration 0.1 to 15g/L;

maintaining a production culture of the *Chlamydomonas* sp. aerobically at a pH between 6.0 and 9.0 and a temperature between 15^{o}C and 37^{o}C;

initiating feeding of the production culture by providing a feeding medium to the production culture when the pH of the production culture exceeds a predetermined set point and ceasing feeding when the pH decreases below the predetermined set point, wherein the feeding medium comprises acetic acid or acetate as a carbon source for the production culture and the predetermined set point is between pH 5.5 and pH 8.5;

growing the production culture under aseptic conditions until it reaches a target density, wherein the target density is selected from the group consisting of between 50 and 75g/L, between 75 and 100g/L, between 100 and 125g/L, between 125 and 150g/L, between 150 and 175g/L, and between 175 and 200g/L dry cell weight; and

harvesting the *Chlamydomonas* sp. from the production culture.

2. The method of claim 1, wherein the production culture is maintained in the absence of light.

3. The method of claim 1, wherein the pH of the production culture is maintained at a pH selected from the group consisting of 6.0, 6.2, 6.5, 6.8 and 7.0.

4. The method of claim 1, wherein the target density is reached within 250 hours after inoculation of the production culture.

5. The method of claim 1, wherein the *Chlamydomonas* sp. is harvested by filtration or centrifugation.

6. The method of claim 1, further comprising drying the harvested *Chlamydomonas* sp.

7. The method of claim 6, further comprising drying the *Chlamydomonas* sp. to a moisture content of less than 15 percent.

8. The method of claim 1, wherein the *Chlamydomonas* sp. is selected from the group consisting of *Chlamydomonas reinhardtii, Chlamydomonas dysomos, Chlamydomonas mundane, Chlamydomonas debaryana, Chlamydomonas moewussi, Chlamydomonas culleus, Chlamydomonas noctigama, Chlamydomonas aulata, Chlamydomonas applanata, Chlamydomonas marvanii, Chlamydomonas proboscigera,* and any combination thereof.

9. The method of claim 1, wherein said *Chlamydomonas* sp. is *Chlamydomonas reinhardtii.*

10. The method of claim 1, wherein the *Chlamydomonas* sp. does not contain a heterologous gene.

11. The method of claim 1, wherein the *Chlamydomonas* sp. contains a heterologous gene.

12. The method of claim 1, wherein feeding is initiated when the pH of the production culture is at least 0.5 units above the set point.

13. The method of claim 1, wherein feeding is ceased when the pH decreases by greater than 0.5 units below the set point.

14. The method of claim 11, wherein the heterologous gene encodes a therapeutic protein and wherein the method further comprises harvesting the therapeutic protein from the production culture.

15. The method of claim 1, further comprising preparing a nutritional supplement or nutritional additive from the *Chlamydomonas* sp. harvested from the production culture.

16. A nutritional supplement or nutritional additive comprising at least 90% of at least one *Chlamydomonas* sp., wherein the nutritional supplement or nutritional additive contains not more than 15% moisture, contains at least 50% crude protein, contains at least 10% fat, and contains not more than 5% ash.

17. The nutritional supplement or nutritional additive of claim 16, wherein the supplement further comprises an Omega 3 fatty acid, Omega 6 fatty acid, Omega 9 fatty acid or any combination thereof.

18. The nutritional supplement or nutritional additive of claim 16, wherein the *Chlamydomonas* sp. is *Chlamydomonas reinhardtii.*

19. An algae biomass comprising one or more species of Chlamydomonas algae wherein the biomass comprises the Chlamydomonas algae at a concentration of at least 50g/L dry cell weight and wherein the biomass is dried so that the resulting material contains less than 25%, less than 20%, less than 15%, less than 10% or less than 5% moisture.