by the culturing, and/or with addition of nitrates, either alternatively or additionally.

[0027]

The invention can also provide a recycling culture method for algae and animal cells. The method may include:

(1) a step of collecting the algae cultured by the method described above,

(2) a step of decomposing the algae to obtain an algae extract, and

(3) a step of culturing animal cells using a medium for culturing of animal cells containing the algae extract.

[0028]

According to one embodiment, step (2) may be used to obtain an algae extract from algae by carrying out some or all of the steps of the method described in International Patent Publication No. WO2021/066113, for example, and it may include the following substeps, for example:

(2a-1) a step of providing the algae for acid hydrolysis and/or alkali hydrolysis; and

(2a-2) a step of neutralizing the hydrolysate obtained by step (2a-1) to obtain an algae extract.

[0029]

According to one embodiment, acid hydrolysis alone or alkali hydrolysis alone may be carried out to obtain an algae extract, or both acid hydrolysis and alkali hydrolysis may be carried out. When both acid hydrolysis and alkali hydrolysis are carried out, the alkali hydrolysis may be carried out after acid hydrolysis or the acid hydrolysis may be carried out after alkali hydrolysis. Neutralizing treatment may also be carried out between the acid hydrolysis and alkali hydrolysis.

[0030]

According to one embodiment, the algae used in step (2a-1) may be supplied for drying treatment before acid hydrolysis and/or alkali hydrolysis.

[0031]

According to one embodiment, the hydrolysate obtained by step (2-1) may have the hydrolysate neutralized by carrying out the neutralizing step (step (2-2)), to obtain an algae extract to be used for cell culturing. When acid hydrolysis has been carried out at the end of step (2-1), for example, a basic substance or its aqueous solution (sodium hydroxide, potassium hydroxide or an aqueous solution of the same) may be added for neutralization. When alkali hydrolysis has been carried out at the end of step (2-1), an acidic substance or its aqueous solution (such as hydrochloric acid, sulfuric acid, trifluoroacetic acid, *p*-toluenesulfonic acid or methanesulfonic acid) may be added for neutralization.

[0032]