CLAIMS

1. A method of culturing a CHO cell by fed-batch culture characterized in that a concentration of serine in a culture solution is maintained at 1 mM or higher, a concentration of tyrosine in the culture solution is maintained at 1 mM or higher, and a concentration of cysteine in the culture solution is maintained at a concentration of the cysteine in an initial medium or at 0.4 mM or higher at least during a certain period after the onset of a cell growth phase, at least during a part of or an entire period sufficient to enable the cell that is to be cultured to grow sufficiently, or during a part of or an entire period sufficient to enable adequate production of the desired protein that is to be produced, at least during a part of or an entire period of an exponential cell growth phase, or at least during a part of or an entire period from a third day to a tenth day of the culture,
wherein the serine, tyrosine and cysteine are fed into the culture solution in multiple batches sequentially or continuously, and
wherein said method is used in a process comprising culturing a cell capable of producing a desired protein to obtain the desired protein.

2. A medium for CHO cell culture, comprising at least 1 mM of serine or a salt thereof, further comprising at least 1 mM of tyrosine and at least 0.4 mM of cysteine.

3. A process of producing a desired protein, comprising culturing a CHO cell that is capable of producing the desired protein, by use of the medium of Claim 2 to obtain the desired protein.

4. A process of producing a desired protein by culturing a CHO cell, comprising culturing a cell using the method of Claim 1.

5. The process according to Claim 3 or 4 wherein the CHO cell is transformed with a gene encoding the desired protein.

6. The process of Claim 5, wherein the desired protein is an antibody.

7. A preparation process of a medicament comprising as an active ingredient a protein produced by the process of any one of Claims 3 to 6.

8. A method of culturing a CHO cell by fed-batch culture, comprising culturing in a culture solution a CHO cell capable of producing a desired protein, wherein
a fed-batch medium enriched with

serine, tyrosine and cysteine

is added to the culture solution during the culture; wherein

a concentration of serine in the culture solution is maintained at 1 mM or higher,

a concentration of tyrosine in the culture solution is maintained at 1 mM or higher, and

a concentration of cysteine in the culture solution is maintained at a concentration of the cysteine in an initial medium or at 0.4 mM or higher

at least during a certain period after the onset of a cell growth phase,

at least during a part of or an entire period sufficient to enable the cell that is to be cultured to grow sufficiently, or during a part of or an entire period sufficient to enable adequate production of the desired protein that is to be produced,

at least during a part of or an entire period of an exponential cell growth phase, or

at least during a part of or an entire period from a third day to a tenth day of the culture;

and wherein said method is capable of producing the desired protein.

CLAIMS

1. A method of culturing a CHO cell by fed-batch culture characterized in that a concentration of serine in a culture solution is maintained at 1 mM or higher, a concentration of tyrosine in the culture solution is maintained at 1 mM or higher, and a concentration of cysteine in the culture solution is maintained at a concentration of the cysteine in an initial medium or at 0.4 mM or higher at least during a certain period after the onset of a cell growth phase, at least during a part of or an entire period sufficient to enable the cell that is to be cultured to grow sufficiently, or during a part of or an entire period sufficient to enable adequate production of the desired protein that is to be produced, at least during a part of or an entire period of an exponential cell growth phase, or at least during a part of or an entire period from a third day to a tenth day of the culture,
wherein the serine, tyrosine and cysteine are fed into the culture solution in multiple batches sequentially or continuously,
wherein concentrations of serine, tyrosine and cysteine in a fed-batch medium is higher than those in an initial medium, and
wherein said method is used in a process comprising culturing a cell capable of producing a desired protein to obtain the desired protein.

2. A fed-batch medium for CHO cell culture, comprising 50 to 200 mM serine or a salt thereof, further comprising 10 to 100 mM tyrosine and 1 to 10 mM cysteine.

3. A process of producing a desired protein, comprising culturing a CHO cell that is capable of producing the desired protein, by use of the medium of Claim 2 to obtain the desired protein.

4. A process of producing a desired protein by culturing a CHO cell, comprising culturing a cell using the method of Claim 1.

5. The process according to Claim 3 or 4 wherein the CHO cell is transformed with a gene encoding the desired protein.

6. The process of Claim 5, wherein the desired protein is an antibody.

7. The method according to Claim 1, comprising culturing in a culture solution a CHO cell capable of producing a desired protein, wherein
a fed-batch medium enriched with serine, tyrosine and cysteine is added to the culture

solution during the culture, wherein concentrations of serine, tyrosine and cysteine in the fed-batch medium is higher than those in an initial medium, and said fed-batch medium comprises serine at a concentration of 50 mM to 200 mM, tyrosine at a concentration of 10 mM to 100 mM, and cysteine at a concentration of 1 mM to 10 mM;

and wherein said method is capable of producing the desired protein.