Additionally, various studies have been conducted for efficiently producing amino acids; for example, efforts have been made to develop microorganisms or fermentation process technologies for producing amino acids with high efficiency. Particularly, specific approaches to target materials have been developed, such as enhancement of expression of genes encoding enzymes involved in the biosynthesis of the amino acids in the strain of the genus *Corynebacterium* or deletion of genes unnecessary for the biosynthesis of amino acids (Korean Patent Nos. 10-0924065 and 1208480). In addition to these methods, a method for removing genes that are not involved in the production of amino acids and a method for removing genes whose functions for producing amino acids are not specifically known have also been utilized. However, there is still a growing need to study methods for efficiently producing amino acids with high yield.

[Summary]

In one aspect, the present disclosure refers to a method for producing glycine, comprising fermenting by culturing a microorganism of the genus *Corynebacterium* comprising ATP phosphoribosyltransferase (HisG), in which the 233rd amino acid of an amino acid sequence of SEQ ID NO: 4 is substituted with histidine (H), or the 233rd and 235th amino acids of an amino acid sequence of SEQ ID NO: 4 are substituted with histidine (H) and glutamine (Q), respectively, in a medium~~microorganism of the genus *Corynebacterium* having increased glycine productivity, in which the activity of ATP phosphoribosyltransferase (HisG) is enhanced~~.

In another aspect, the present disclosure refers to a composition for producing glycine, comprising a microorganism of the genus *Corynebacterium* comprising ATP phosphoribosyltransferase (HisG), in which the 233rd amino acid of an amino acid sequence of SEQ ID NO: 4 is substituted with histidine (H), or the 233rd and 235th amino acids of an amino acid sequence of SEQ ID NO: 4 are substituted with histidine (H) and glutamine (Q), respectively~~method for preparing a fermented composition comprising glycine and glutamic acid, comprising fermenting by culturing the microorganism of the genus *Corynebacterium* as disclosed herein in a medium~~.

~~In yet another aspect, the present disclosure refers to a fermented composition prepared by the method as disclosed herein.~~

[Disclosure]

[Technical Problem]

The present inventors have made efforts to develop a method capable of simultaneously producing several amino acids, and as a result, they have confirmed that when the HisG activity of a microorganism capable of producing glutamic acid is enhanced compared to that of its parent strain, the glycine-producing ability can be improved while maintaining the glutamic acid-producing ability, thereby completing the present disclosure.

[CLAIMS]

~~[Claim 1]~~

~~A microorganism of the genus *Corynebacterium* having increased glycine productivity, in which the activity of ATP phosphoribosyltransferase (HisG) is enhanced.~~

~~[Claim 2]~~

~~The microorganism according to claim 1, wherein, in the ATP phosphoribosyltransferase, the 233rd amino acid of an amino acid sequence of SEQ ID NO: 4 is substituted with histidine (H).~~

~~[Claim 3]~~

~~The microorganism according to claim 1, wherein, in the ATP phosphoribosyltransferase, the 233rd and 235th amino acids of an amino acid sequence of SEQ ID NO: 4 are substituted with histidine (H) and glutamine (Q), respectively.~~

~~[Claim 4]~~

~~The microorganism according to claim 2, wherein the ATP phosphoribosyltransferase consists of an amino acid sequence of SEQ ID NO: 5.~~

~~[Claim 5]~~

~~The microorganism according to claim 3, wherein the ATP phosphoribosyltransferase consists of an amino acid sequence of SEQ ID NO: 6.~~

~~[Claim 6]~~

~~The microorganism according to any one of claims 1 to 5, wherein the microorganism of the genus *Corynebacterium* is *Corynebacterium glutamicum*.~~

[Claim ~~7~~1]

A method for ~~preparing a fermented composition comprising~~producing glycine ~~and glutamic acid~~, comprising fermenting by culturing ~~the~~ a microorganism of the genus *Corynebacterium* ~~of any one of claims 1 to 5~~ comprising ATP phosphoribosyltransferase (HisG), in which the 233rd amino acid of an amino acid sequence of SEQ ID NO: 4 is substituted with

histidine (H), or the 233rd and 235th amino acids of an amino acid sequence of SEQ ID NO: 4 are substituted with histidine (H) and glutamine (Q), respectively, in a medium.

[Claim 2]

The method according to claim 1, further producing glutamic acid.

[Claim 3]

The method according to claim 1, wherein the glycine is in the form of being comprised in a fermented composition.

[Claim 4]

The method according to claim 1, further comprising recovering glycine from the cultured medium.

[Claim 5]

The method according to claim 1, wherein the glycine productivity is increased compared to a microorganism of the genus *Corynebacterium* having ATP phosphoribosyltransferase without the substitution.

[Claim 6]

The method according to claim 1, wherein the ATP phosphoribosyltransferase consists of an amino acid sequence of SEQ ID NO: 5 or SEQ ID NO: 6.

[Claim 7]

The method according to claim 1, wherein the microorganism of the genus *Corynebacterium* is *Corynebacterium glutamicum*.

[Claim 8]

A composition for producing glycine, comprising a microorganism of the genus *Corynebacterium* comprising ATP phosphoribosyltransferase (HisG), in which the 233rd amino acid of an amino acid sequence of SEQ ID NO: 4 is substituted with histidine (H), or the 233rd and 235th amino acids of an amino acid sequence of SEQ ID NO: 4 are substituted with histidine

(H) and glutamine (Q), respectively.

~~[Claim 8]~~

~~A fermented composition prepared by the method of claim 7.~~