(for example, fractions rich in glycoproteins) in the hydrolysate, and the microbiological protection of the hydrolysates since they are run without or at low salt concentrations, and at temperatures which are permissible for certain spoilage micro-organisms to grow.

Consequently, there has been a need for an enzyme preparation with improved properties for the hydrolysis of cereal products.

The applicant has surprisingly found that an enzyme preparation obtainable from a Koji fermentation, based on mushrooms as a raw material for the fermentation process, increased the expression of proteases and/or peptidases from *Aspergillus*. The presence of a cereal product, for example wheat or barley, in the fermentation process further increased the proteolytic activity of these enzymes. Still further production and/or activity increases could be obtained by adding a small amount of a growth medium to the fermentation process.

The crude enzyme preparation obtained in this way was more active than commercial enzyme preparations, for example Flavorzyme®, and lead to an enhanced and faster proteolytic activity against wheat gluten. This allows the use of this enzyme preparation in a more efficient hydrolysis process of cereal products, such as wheat or soy, resulting in improved hydrolysis of those raw materials. The hydrolysis process was faster, thereby reducing the risk of spoilage by undesired micro-organisms and reducing the cost of production by making use of a crude enzyme preparation instead of using a purified commercial enzyme. Furthermore, and contrary to the use of potent commercial enzymes, for example Alcalses, no off-flavours, i.e. bitterness, were detected.

In one embodiment, the present invention provides an enzyme preparation that at least goes part way to overcoming one or more of the above disadvantages of known enzyme preparations.

Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of common general knowledge in the field.

~~An object of the present invention is therefore to provide an enzyme preparation that at least goes part way to overcoming one or more of the above disadvantages of known enzyme preparations.~~

It is an object of the present invention to overcome or ameliorate at least one of the disadvantages of the prior art, or to provide a useful alternative.

SUMMARY OF THE INVENTION

According to a first aspect, the present invention provides a process for producing an enzyme preparation obtained from a Koji fermentation, comprising the step of fermenting a mixture of mushrooms and at least one cereal with an *Aspergillus*,

wherein the mushroom is selected from the group consisting of *Agaricus brunnescens*, *Coprinus comatus*, *Agaricus bisporus*, *Agaricus campestris*, *Pleurotus citrinipileatus*, *Pleurotus eryngii*, *Boletus edulis*, *Craterellus cornucopioides*, *Craterellus tubaeformis*, *Agaricus blaze*, *Volvariella volvacea* and *Agrocybe Aegerita*, or any combination thereof.

According to a second aspect, the present invention provides an enzyme preparation produced by the process of the first aspect.

Unless the context clearly requires otherwise, throughout the description and the claims, the words "comprise", "comprising", and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

In ~~a first~~another aspect, the invention provides an enzyme preparation obtainable from a Koji fermentation, wherein the Koji fermentation comprises mushrooms fermented with *Aspergillus*.

In a ~~second~~further aspect, the invention provides a process for the production of an enzyme preparation comprising the step of fermenting mushrooms with *Aspergillus, preferably* fermenting mushrooms together with cereal.

A further aspect of the invention provides the use of the enzyme preparation of the invention for the hydrolysis of cereal products or meat products, and for the preparation of food products.

CLAIMS

~~1. An enzyme preparation obtainable from a Koji fermentation, wherein the Koji fermentation comprises mushrooms fermented with *Aspergillus*.~~

~~2. The enzyme preparation according to claim 1, wherein the Koji fermentation further comprises a cereal fermented with *Aspergillus*.~~

~~3. The enzyme preparation according to claim 2, wherein the cereal is selected from the group consisting of wheat and barley, or a combination thereof.~~

~~4. The enzyme preparation according to claim 2 or claim 3, wherein the Koji fermentation comprises 10-99 wt % mushrooms and 10-60 wt % cereal.~~

~~5. The enzyme preparation according to any one of claims 2 to 4, wherein the Koji fermentation comprises 60-90 wt % mushrooms and 10-40 wt % cereal.~~

~~6. The enzyme preparation according to any one of claims 2 to 5, wherein the Koji fermentation comprises 90 wt % mushrooms and 10 wt % cereal.~~

~~7. The enzyme preparation according to any one of claims 2 to 6, wherein the cereal is wheat.~~

~~8. The enzyme preparation according to any of claims 1 to 7, wherein the Koji fermentation further comprises a growth medium in the range from 0.1 – 10 wt % of the total mixture.~~

~~9. The enzyme preparation according to claim 8, wherein the amount of the growth medium is in the range from 1 – 3 wt % of the total mixture.~~

~~10. The enzyme preparation according to claim 8 or claim 9, wherein the growth medium is selected from the group consisting of defatted soybean cake, yeast extract, peptone, corn steep liquor, and any combination thereof.~~

~~11. The enzyme preparation according to any one of claims 1 to 10, wherein the mushroom is selected from the group consisting of *Agaricus brunnescens, Coprinus comatus, Lentinula edodes, Agaricus bisporus, Agaricus campestris, Hypsizygus tessulatus, Pleurotus ostreatus, Pleurotus citrinipileatus, Pleurotus eryngii, Boletus edulis, Craterellus*~~

1. A process for producing an enzyme preparation obtained from a Koji fermentation, comprising the step of fermenting a mixture of mushrooms and at least one cereal with an *Aspergillus*, wherein the mushroom is selected from the group consisting of *Agaricus brunnescens*, *Coprinus comatus*, *Agaricus bisporus*, *Agaricus campestris*, *Pleurotus citrinipileatus*, *Pleurotus eryngii*, *Boletus edulis*, *Craterellus cornucopioides*, *Craterellus tubaeformis*, *Agaricus blaze*, *Volvariella volvacea* and *Agrocybe Aegerita*, or any combination thereof.

2. The process according to claim 1, wherein the cereal is selected from the group consisting of wheat and barley, or a combination thereof.

3. The process according to claim 1 or claim 2, wherein the Koji fermentation comprises 10 - 99 wt % mushrooms and 10 - 60 wt % cereal.

4. The process according to any one of claims 1 to 3, wherein the Koji fermentation comprises 60 - 90 wt % mushrooms and 10 - 40 wt % cereal.

5. The process according to any one of claims 1 to 4, wherein the Koji fermentation comprises 90 wt % mushrooms and 10 wt % cereal.

6. The process according to any one of claims 1 to 5, wherein the cereal is wheat.

7. The process according to any of claims 1 to 6, wherein the Koji fermentation further comprises a growth medium in the range from 1 - 10 wt % of the total mixture.

8. The process according to claim 7, wherein the amount of the growth medium is in the range from 1 - 3 wt % of the total mixture.

9. The process according to claim 7 or claim 8, wherein the growth medium is selected from the group consisting of defatted soybean cake, yeast extract, peptone, corn steep liquor, and any combination thereof.

10. An enzyme preparation produced by the process of any one of claims 1 to 9.

~~*cornucopioides, Craterellus tubaeformis, Agaricus blazei, Volvariella volvacea, Agrocybe Aegerita or Ganoderma lucidum*, and any combination thereof.~~

~~12. The enzyme preparation according to any one of claims 2 to 11, wherein the cereal is selected from the group consisting of whole cereal, cereal gluten, cereal bran, cereal husks and rootlets, and processed cereal, or any combination thereof.~~

~~13. The enzyme preparation according to any one of claims 1 to 12, wherein the *Aspergillus* is *Aspergillus oryzae*.~~

~~14. A process for producing the enzyme preparation of any one of claims 1 to 13 comprising the step of fermenting a mushroom with *Aspergillus*.~~

~~15. The process according to claim 14, wherein cereal is including in the fermenting step.~~

~~16. The process according to claim 14 or claim 15, further comprising the step of purifying the enzyme preparation by extraction, separation, concentration, or any combination thereof.~~

~~17. The use of the enzyme preparation according to any of claims 1 to 13 for the hydrolysis of a cereal product, a meat product, or a combination thereof.~~

~~18. The use of the enzyme preparation according to any of claims 1 to 13 for the preparation of a food product such as a seasoning sauce, taste maker, soup, dehydrated seasoning, bouillon or paste.~~