Patent document 13: Japanese unexamined Patent Application Publication No. 2005-192506

Patent document 14: Japanese unexamined Patent Application Publication No. 2010-268693

Patent document 15: Japanese unexamined Patent Application Publication (Translation of PCT Application) No. 2009-537136

Summary of the Disclosure

Object to be Solved by the Disclosure

[0010]

An object of the present disclosure is to reduce oil absorption during deep-frying in the production of doughnuts as products having a minimum content of oil from heath consciousness have been intended in the production of deep-fried foods such as doughnuts, and to provide doughnuts which retain the original taste and flavor of doughnuts, are conferred with soft and chewy texture, and having a reduced content of absorbed oil and excellent palatability with favorable taste and texture, and a method for producing the same.

Means to Solve the Object

[0011]

To attain the object, the present inventors have conducted diligent studies on a method for reducing the content of absorbed oil in the production of doughnuts, retaining the original taste and flavor of doughnuts, and obtaining the intended texture of doughnuts, and have consequently completed the present invention by finding

that doughnut ingredients including wheat flour and starch are allowed to contain a particular starch and/or modified starch, whereby oil absorption during deep-frying can be reduced, and soft and chewy texture can be provided thereto, and furthermore, doughnuts that retain the original taste and flavor of doughnuts and has a reduced content of absorbed oil and excellent palatability with favorable taste and texture can be produced.

[0011a]

In one aspect, there is provided a method for producing doughnuts of reduced oil absorption and conferred with chewy texture, the doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, and wherein the starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.

[0011b]

In another aspect, there is provided a doughnut of reduced oil absorption and conferred with chewy texture, produced by a method described herein, or a method for reducing oil absorption and conferring chewy texture to doughnuts described herein.

[0011c]

In another aspect, there is provided a premix for producing doughnuts of reduced oil absorption and conferred with chewy texture, the premix for producing doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, and wherein the starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is mixed to be contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.

[0012]

Specifically, the present disclosure provides a method for producing doughnuts of reduced oil absorption and conferred with chewy texture, wherein a starch and/or modified starch which gelatinization onset temperature is 30°C or higher and 63°C or lower is contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch in doughnuts comprising wheat flour and starch.

[0013]

In the method for producing doughnuts according to the present disclosure, a starch and/or a modified starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower is used as the starch and/or the modified starch to be mixed into the doughnut ingredients including wheat flour and starch. Particularly preferably, a starch and/or a modified starch having a gelatinization onset temperature of 49°C or higher and 63°C or lower can be used. In the method for producing doughnuts according to the present disclosure, the starch and/or the modified starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower, to be mixed into the doughnut

ingredients including wheat flour and starch, can be mixed at a ratio of 5 parts by weight or more and 90 parts by weight or less of the starch and/or the modified starch with respect to 100 parts by weight in total of the wheat flour and the starch. Particularly preferably, the content of the starch and/or the modified starch can be 15 parts by weight or more and 70 parts by weight or less.

[0014]

In the method for producing doughnuts according to the present disclosure, examples of the starch and/or the modified starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower, to be mixed into the doughnut ingredients including wheat flour and starch, can include one or more starches selected from waxy tapioca starch, hydroxypropyl starch, and/or acetyl starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower. Examples of the hydroxypropyl starch can include hydroxypropyl tapioca starch having a degree of substitution of 0.06 or higher and 0.12 or lower.

[0015]

The present disclosure encompasses a method for reducing oil absorption in produced doughnuts and conferring chewy texture thereto, comprising, in the production of doughnuts comprising wheat flour and starch, adjusting the content of a starch and/or a modified starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower to 15 parts by weight or more and 70 parts by weight or less with respect to 100 parts by weight in total of the wheat flour and the starch.

[0016]

In addition, the present disclosure encompasses doughnuts themselves of reduced oil absorption and conferred with chewy texture, the doughnuts being produced by the method for producing doughnuts or the method for reducing oil absorption in doughnuts and conferring chewy texture thereto according to the present disclosure. Further, the present disclosure encompasses a premix for the production of doughnuts of reduced oil absorption and conferred with chewy texture, the premix being formulated to allow doughnuts comprising wheat flour and starch to comprise 5 parts by weight or more and 90 parts by weight or less of a starch and/or a modified starch having a gelatinization onset temperature of 30°C or higher and 63°C or lower with respect to 100 parts by weight in total of the wheat flour and the starch.

[0017]

More specifically, the present disclosure provides:

(1) A method for producing doughnuts of reduced oil absorption and conferred with chewy texture, wherein a starch and/or modified starch which gelatinization onset temperature is 30°C or higher and 63°C or lower is contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch in doughnuts comprising wheat flour and starch;

(2) The method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to (1), wherein a content of starch and/or modified starch which gelatinization onset temperature is 30°C or higher and 63°C or lower is 15 parts by weight or more and 70

parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch in doughnuts comprising wheat flour and starch;

(3) the method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to (1) or (2), wherein the starch which gelatinization onset temperature is 30°C or higher and 63°C or lower is one or more starches selected from waxy tapioca starch, hydroxypropyl starch and/or acetyl starch;, and

(4) the method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to (3), wherein the hydroxypropyl starch is a hydroxypropyl tapioca starch having a degree of substitution of 0.06 or more and 0.12 or less.

[0018]

The present disclosure also provides:

(5) a method for reducing oil absorption and conferring chewy texture to produced doughnuts, comprising adjusting a content of starch and/or modified starch which gelatinization onset temperature is 30°C or higher and 63°C or lower to 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch in the production of doughnuts comprising wheat flour and starch;

(6) a doughnut of reduced oil absorption and conferred with chewy texture, produced by a method for producing doughnuts according to any one of (1) to (4), or a method for reducing oil absorption and conferring chewy texture to doughnuts according to (5); and

CLAIMS

1. A method for producing doughnuts of reduced oil absorption and conferred with chewy texture, the doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, and wherein the starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.

2. The method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to claim 1, the doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, and wherein a content of starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is 15 parts by weight or more and 70 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.

3. The method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to claim 1 or 2, wherein the starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is one or more starches selected from waxy tapioca starch, hydroxypropyl starch and/or acetyl starch.

4. The method for producing doughnuts of reduced oil absorption and conferred with chewy texture according to claim 3, wherein the hydroxypropyl starch is a

hydroxypropyl tapioca starch having a degree of substitution of 0.06 or more and 0.12 or less.

5. A method for reducing oil absorption and conferring chewy texture to produced doughnuts, the doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, which method comprises adjusting a content of starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower to 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.

6. A doughnut of reduced oil absorption and conferred with chewy texture, produced by a method for producing doughnuts according to any one of claims 1 to 4, or a method for reducing oil absorption and conferring chewy texture to doughnuts according to claim 5.

7. A premix for producing doughnuts of reduced oil absorption and conferred with chewy texture, the premix for producing doughnuts comprising wheat flour and starch as starchy raw material, wherein the starchy raw material consists of wheat flour and a starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower, and wherein the starch and/or modified starch which gelatinization onset temperature is 49.4°C or higher and 62.6°C or lower is mixed to be contained at 5 parts by weight or more and 90 parts by weight or less with respect to a total of 100 parts by weight of wheat flour and starch.