明　細　書

気泡入り畜肉加工食品

技術分野

本発明は、気泡入り畜肉加工食品およびその製造方法に関する。本発明の加工食品は、気泡が入っているために食感がソフトで軽く、食べやすいという特徴を有する。

背景技術

畜肉は現代の食によく適合しており、肉自体も肉の加工品も広く好まれている。畜肉の加工品には、ハム、ソーセージ、ベーコン、コンビーフ、焼豚などさまざまなものがあるが、これらの加工品は肉そのものの組織や食感を有していて歯ごたえがしっかりしたものである。しかし、最近の嗜好は軟らかいものへと変化しており、畜肉加工品でも肉の食感が強い加工品よりもひき肉加工品の方が好まれるようになっている。だが、食感がソフトな畜肉加工品は、今のところハンバーグやこれに類するもの以外には見受けられない。このため、ソフトな畜肉加工品に対する潜在的なニーズはあっても、それに適合する具体的な食品が見当たらないのが現状である。

そこで、本発明は、ソフトで軽い食感を有する新しい畜肉加工食品を提供することを課題とした。そのために、気泡入り畜肉加工食品を設計し、その製造方法を検討した。

発明の開示

上記課題は、畜肉を塩ずりし、撹拌により起泡させた後、成型して加熱することによってソフトな食感を有する気泡入り畜肉加工食品を製造し得ることを見いだしたことによって解決された。

使用する畜肉は、牛肉、豚肉、鶏肉、羊肉、馬肉、家兎肉などの食用に用いられるものであれば、いずれの肉であってもよいし、二種以上の畜肉を用いてもよい。通常は、牛肉、豚肉、鶏肉などの一種または二種以上を用いる。これらの畜肉は、所望によりひき肉などの加工しやすい形にして使用する。なお、畜肉とともに魚肉などの他の原料を併用してもよい。

気泡入りの製品を製造するためには、まず畜肉を塩ずりして蛋白を溶かし、後

に撹拌したときに起泡しやすくしておく必要がある。塩ずりは当業者が通常行う方法で行うことができる。塩ずりの際の塩濃度は、畜肉に対して２－４％にするのが好ましい。この濃度であれば、畜肉の蛋白を効率良く溶かし、適当な塩味の最終製品を製造することができる。塩の他に、塩の機能を阻害しない他の成分を併存させておいてもよい。例えば、後述の甘味料や調味料などを併存させておくことができる。塩ずりはフードカッター、擂潰機、サイレントカッターなどの通常用いられている塩ずり用の装置を用いて行うことができる。

次いで行う撹拌による起泡は、バッチ式で行っても連続式で行ってもよい。バッチ式で行う場合には、例えば擂潰機、サイレントカッター、高速カッターを用いて行うことができる。連続式で行う場合には、例えば特公昭６３－６３１９０号第２図に記載される連続式ピンミキサーを用いて行うことができる。連続式にすれば、製造工程を中断せずに効率良く製造することができる。起泡は、最終製品の比重が０．３－０．９５になるように行う。好ましくは０．４－０．８であり、より好ましくは０．５－０．７５であり、最も好ましくは０．５－０．６になるようにする。比重が高いときは気泡が少ないため、ゲル強度が強くて比較的固い食感になる。しかし、比重が高すぎるとソフトな加工品には適合しなくなる。逆に比重が低いときは気泡が多いため、ゲル強度が弱くて柔らかい食感になる。ただし、求める製品の食感、物性により任意に含気量や比重を調整すればよい。撹拌による起泡に際して、事前に起泡剤を添加しておいてもよい。起泡剤は、組成物の粘度を高めることによって、撹拌時に組成物内部に入り込んだ空気を内包したまま保持しやすくする機能を奏するものであり、食用に適し、本発明の他の工程に悪影響を及ぼさないものの中から広く選択することができる。例えば、山芋、卵白、グアーガムなどの増粘多糖類、乳化剤などを用いることができる。これらの起泡剤は、単独で用いても組み合わせて用いてもよい。起泡剤の使用量は含気量によって変化し、気泡を多くするときには多くし、気泡を少なくするときには少なくてよい。発泡した組成物には、調味料、甘味料、澱粉、パン粉などの副原料を添加することができる。さらに、野菜や肉片などの固形物を発泡後の組成物に加えてもよい。

成型は、当業者に通常用いられる方法により、成型機などを用いて行う。例え

ばボール状や小判形など、目的とする最終製品に応じた形になるようにする。また、加熱も通常の方法によって行う。例えば、揚げる、蒸す、茹でる、焼くなどの処理を施すことができる。これらの操作は、目的とする最終製品に応じて適宜組み合わせてもよい。

上に記載した製造方法には、さらに付随する工程を付け足してもよい。例えば、適当な段階で甘味料、調味料、澱粉、パン粉、野菜などを添加してもよい。さらに起泡後にひき肉や肉ブロックなどを添加してもよい。これらの添加成分の種類や添加量は、当業者の通常の知識の範囲内で適宜選択しうる。ただし、最終製品の比重が０．３－０．９５の範囲内になるようにする。また、添加の時期も特に制限されるものではなく、とくに甘味料や調味料などの添加は撹拌による起泡前であっても後であってもよい。さらに、本発明の製造方法には、付随する操作を付け加えてもよい。

以下に実施例を挙げて、本発明を具体的に説明する。

（実施例１）

牛肉赤身のひき肉１ｋｇに食塩３５ｇを加え、サイレントカッター［（株）備文製］を用いて塩ずりを行った。粘りが出て来たところでグアーガム１０ｇ、卵白１００ｇを加え、サイレントカッター［（株）備文製］を用いて撹拌を行うことによって含気させた。比重が０．７０程度になったところで、馬鈴薯澱粉５０ｇ、グルタミン酸ナトリウム２０ｇ、コショウ５ｇ、水５００ｍｌを加えて良く混合した。このときの比重は０．８０であった。このものを、直径８ｃｍ、厚さ１ｃｍの円形に成型し、８５－９５℃の湯中で１５分間加熱して、気泡入り牛肉加工品を製造した。

この牛肉加工品は、今までにないソフトな食感を有しており、バター焼にしても、パンに挟んでもソフトで美味しく食べられた。

（実施例２）

鶏ムネ肉ヒキ肉１ｋｇに食塩４０ｇを加え、サイレントカッター［（株）備文製］を用いて塩ずりを行った。粘りが出はじめたところで山芋５０ｇ、グアーガム１０ｇ、卵白１００ｇを加え、サイレントカッター［（株）備文製］を用いて撹拌を行うことによって含気させた。充分に含気させたところで、馬鈴薯澱粉７

０ｇ、砂糖３０ｇ、グルタミン酸ナトリウム２０ｇ、チキンエキス５０ｇ、コショウ５ｇ、水３５０ｇを加えて良く混合した。このときの比重は０．５程度であった。この含気生身に鶏ひき肉４００ｇ、玉ねぎみじん切２００ｇを混合した。このときの比重は０．７５であった。このものを１０ｃｍｘ７ｃｍで厚さ１２ｍｍ程度の小判形に成形し、８５－９０℃の蒸し器で１５分間蒸して発泡入り鶏肉加工品を製造した。

この鶏加工品は、ソフトで軽い食感を有しながら、ひき肉による肉粒感を兼ね備えていた。

（実施例３）

豚肉ももひき肉５ｋｇに食塩１００ｇを加え、サイレントカッター［（株）備文製］でよく塩ずりをした。塩ずりが充分できたところで、卵白１５０ｇ、馬鈴薯澱粉２５０ｇ、砂糖２０ｇ、グルタミン酸ナトリウム２０ｇ、日本酒２０ｇ、醤油２０ｇ、コショウ７ｇ、水１リットルを加えてよく混合した。この混合すり身を特公昭６３－６３１９０号記載のピンミキサーを用いて発泡させ、比重０．８５に含気させた。このものを１０ｃｍｘ７ｃｍ、厚さ１０ｍｍの小判形に成型し、１６０－１７０℃の揚げ油で１０秒間油焼して表面のみをゲル化させた。このものをさらに８５－９０℃の蒸し機で１５分間加熱することによって完全に中心部まで熱処理し、気泡入り豚肉加工品を製造した。

この豚肉加工品は、ソフトな食感を有していた。

請　求　の　範　囲

1．比重が0．3－0．95である気泡入り畜肉加工食品。

2．畜肉を塩ずりし、撹拌により起泡させた後、成型して加熱することによる気泡入り畜肉加工食品の製造方法。

3．請求項2の製造方法により製造した気泡入り畜肉加工食品。

SPECIFICATION

FOAMED PROCESSED MEAT FOODS

Technical Field

This invention relates to foamed processed meat foods and a process for producing the same. Because of having been foamed, the foods of the present invention are characterized by soft texture and easiness to eat.

Background Art

Meat matches well modern eating habits and, therefore, meat per se and processed meat products are both popular broadly. Processed meat products involve various ones, for example, ham, sausage, bacon, corned beef and roasted pork. These processed products have the inherent structure and texture of meat, thus showing crispness. In recent years, however, consumers would make a choice to soft foods and prefer processed ground meat foods to those having the characteristic texture of meat. However, there is no processed meat food with soft texture at the present time except hamburger steak and products similar thereto. Namely, although there are potential needs for soft processed meat products, there is no food satisfying this requirement in practice.

Under these circumstances, an object of the present invention is to provide novel processed meat foods having soft and light texture. To achieve this object, the present inventors have designed foamed processed meat foods and studied on a process for producing the same.

Disclosure of the Invention

Thus the present inventors have found that foamed processed meat foods having soft texture can be produced by mixing meat with

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sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it, thus achieving the above-mentioned object.

The meat to be used in the present invention may be an arbitrary one, so long as it is selected from edible ones (beef, pork, chicken, mutton, horse, rabbit, etc.). It is also possible to use two or more meats. In usual, use is made of one or more meats such as beef, pork or chicken. If desired, the meat may be processed into ground meat, etc. so as to facilitate the processing. The meat may be used together with other materials such as fish meat.

To produce foamed products, it is needed that the meat is first subjected to shio-zuri to thereby solubilize proteins, thus facilitating the subsequent foaming by stirring. The shio-zuri may be performed by a method commonly employed in the art. In the step of shio-zuri, the concentration of sodium chloride is regulated preferably to 2 to 4 % based on the meat. At such a concentration, proteins in the meat can be efficiently solubilized and an appropriate saltiness can be imparted to the final product. In addition to sodium chloride, other components may be used in this step, so long as the effects of sodium chloride are not inhibited thereby. For example, use may be made therefor of sweeteners, seasonings, etc., as will be described hereinafter. The shio-zuri can be carried out by using an apparatus usually employed therefor, for example, a food cutter, an attritor or a silent cutter.

The foaming by stirring, which is the subsequent procedure, may be conducted either batch-wise or continuously. In a batch process, use may be made therefor of an attritor, a silent cutter or a high-speed cutter. In a continuous process, it is possible to use, for example, a continuous pin mixer described in JP (Kokoku) Sho 63-63190 (Fig. 2). By using the continuous process, the product can be efficiently produced without any suspension.

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The foaming is carried out so that the final product has a specific gravity of from 0.3 to 0.95, preferably from 0.4 to 0.8, still preferably from 0.5 to 0.75, and from 0.5 to 0.6 in the most desirable case. When the product has a high specific gravity due to poor foaming, it has a high gel strength and relatively hard texture. Namely, an excessively high specific gravity is inappropriate for processed foods with soft texture. On the other hand, a product having a low specific gravity due to rich foaming shows a low gel strength and soft texture. However, the air-content and specific gravity may be appropriately controlled depending on the desired texture and physical properties of the product. A foaming agent may be added to the meat composition prior to the foaming by stirring. The foaming agent can elevate the viscosity of the composition and thus allow to maintain air bubbles incorporated into the composition during stirring as such. It may be selected from various ones which are suitable for edible use and exert no undesirable effect on other steps of the present invention. Examples of the foaming agent usable in the present invention include yam, egg albumen, thickening polysaccharides (guar gum, etc.) and emulsifiers. Either one of these foaming agents or a mixture thereof may be employed. The amount of the foaming agent varies depending on the air content. That is to say, the amount of the foaming agent employed is increased with an increase in the foam volume. To the foamed composition, side materials (seasonings, sweeteners, starch, bread crumbs, etc.) may be added. Furthermore, solid matters such as vegetable and meat pieces may be added to the foamed composition.

The molding is performed by a method commonly employed in the art with the use of a molding machine, etc. For example, the foamed composition is shaped into balls, ovals, etc. depending on the desired final product. The heating is also carried out in a conventional manner, for example, frying, steaming, boiling or roasting. These procedures may be appropriately combined with

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each other depending on the desired final product.

The production process as described above may further involve additional steps. For example, additives (sweeteners, seasonings, starch, bread crumbs, vegetables, etc.) may be added at an appropriate step. Moreover, ground meat or meat blocks may be added to the foamed composition. The types and amounts of these additives may be appropriately selected within the scope known by those skilled in the art, so long as the specific gravity of the final product falls within the range of from 0.3 to 0.95. The addition timing is not particularly restricted too. In particular, sweeteners, seasonings, etc. may be added either before or after the foaming by stirring. The production process of the present invention may involve additional procedures.

To further illustrate the present invention in greater detail, the following Examples will be given.

(Example 1)

35 g of sodium chloride was added to 1 kg of ground lean beef which was then subjected to shio-zuri by using a silent cutter (manufactured by Bibun). When the mixture became viscous, 10 g of guar gum and 100 g of egg albumen were added thereto and the resultant composition was foamed by stirring with a silent cutter (manufactured by Bibun). When the specific gravity of the composition reached about 0.70, 50 g of potato starch, 20 g of sodium glutamate, 5 g of pepper and 500 ml of water were added thereto followed by well mixing. The composition showed a specific gravity of 0.80 at this stage. Next, the composition was molded into a circular form (diameter: 8 cm, thickness: 1 cm) and heated in hot water at 85 to 95℃ for 15 minutes to thereby give a foamed processed beef product.

This processed beef product had a soft texture never observed in the conventional products. It tasted soft and good when fried in butter or sandwiched.

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(Example 2)

40 g of sodium chloride was added to 1 kg of ground chicken breast which was then subjected to shio-zuri by using a silent cutter (manufactured by Bibun). When the mixture became viscous, 50 g of yam, 10 g of guar gum and 100 g of egg albumen were added thereto and the resultant composition was foamed by stirring with a silent cutter (manufactured by Bibun). When the composition was sufficiently foamed, 70 g of potato starch, 30 g of sucrose, 20 g of sodium glutamate, 50 g of chicken extract, 5 g of pepper and 350 g of water were added thereto followed by well mixing. The composition showed a specific gravity of 0.5 at this stage. Next, 400 g of ground chicken and 200 g of small onion pieces were added to the foamed composition. The resultant composition showed a specific gravity of 0.75. Then the composition was molded into an oval form (10 cm x 7 cm, thickness: 12 mm) and steamed in a steamer at 85 to 95 ℃ for 15 minutes to thereby give a foamed processed chicken product.

This processed chicken product had a soft and light texture while sustaining the grained touch characteristic to ground meat.

(Example 3)

100 g of sodium chloride was added to 5 kg of ground pork inside ham which was then subjected to shio-zuri by using a silent cutter (manufactured by Bibun). After the completion of the shio-zuri, 150 g of egg albumen, 250 g of potato starch, 20 g of sucrose, 20 g of sodium glutamate, 20 g of sake, 20 g of soy sauce, 7 of pepper and 1 l of water were added thereto followed by well mixing. The composition was foamed with the use of a pin mixer described in JP (Kokoku) Sho 63-63190 so that it showed a specific gravity of 0.85. Then the composition was molded into an oval form (10 cm x 7 cm, thickness: 10 mm) and fried in oil at 160 to 170 ℃ for 10 seconds so as to cause gelation at the surface alone.

Subsequently, it was steamed in a steamer at 85 to 95 ℃ for 15 minutes to thereby completely heat to the core, thus giving a foamed processed pork product.

This processed pork product had a soft texture.

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What is claimed is:

1. Foamed processed meat foods having specific gravity of from 0.3 to 0.95.

2. A process for producing foamed processed meat foods which comprises mixing meat with sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it.

3. Foamed processed meat foods produced by the process as claimed in Claim 2.

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ABSTRACT

Disclosure is made of a process for producing foamed processed meat foods which comprises mixing meat with sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it and foamed processed meat foods produced by this process. The processed meat foods of the present invention are characterized by soft and light texture.

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What is claimed is:

1. Foamed processed meat foods having specific gravity of from 0.3 to 0.95.

2. (Amended) The processed meat foods as claimed in Claim 1 to which water is added.

3. (Amended) The processed meat foods as claimed in Claim 1 to which at least 20 parts by weight of water is added per 100 parts by weight of meat.

4. (Added) A process for producing foamed processed meat foods which comprises mixing meat with sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it.

5. (Added) The production process as claimed in Claim 4, wherein water is added between the shio-zuri and the subsequent stirring or between the foaming by stirring and the subsequent molding.

6. (Added) Foamed processed meat foods produced by the process as claimed in Claim 4 or 5.

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sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it, wherein water is added between the shio-zuri and the subsequent foaming by stirring or between the foaming by stirring and the subsequent moulding, thus achieving the above-mentioned object.

The meat to be used in the present invention may be an arbitrary one, so long as it is selected from edible ones (beef, pork, chicken, mutton, horse, rabbit, etc.). It is also possible to use two or more meats. In usual, use is made of one or more meats such as beef, pork or chicken. If desired, the meat may be processed into ground meat, etc. so as to facilitate the processing. The meat may be used together with other materials such as fish meat.

To produce foamed products, it is needed that the meat is first subjected to shio-zuri to thereby solubilize proteins, thus facilitating the subsequent foaming by stirring. The shio-zuri may be performed by a method commonly employed in the art. In the step of shio-zuri, the concentration of sodium chloride is regulated preferably to 2 to 4 % based on the meat. At such a concentration, proteins in the meat can be efficiently solubilized and an appropriate saltiness can be imparted to the final product. In addition to sodium chloride, other components may be used in this step, so long as the effects of sodium chloride are not inhibited thereby. For example, use may be made therefor of sweeteners, seasonings, etc., as will be described hereinafter. The shio-zuri can be carried out by using an apparatus usually employed therefor, for example, a food cutter, an attritor or a silent cutter.

The foaming by stirring, which is the subsequent procedure, may be conducted either batch-wise or continuously. In a batch process, use may be made therefor of an attritor, a silent cutter or a high-speed cutter. In a continuous process, it is possible to use, for example, a continuous pin mixer described in JP (Kokoku) Sho 63-63190 (Fig. 2). By using the continuous process, the product can be efficiently produced without any suspension.

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each other depending on the desired final product.

Water may be added between the shio-zuri and the subsequent foaming by stirring or between the foaming by stirring and the subsequent moulding. The addition of the water may be at least 20 parts by weight of water per 100 parts by weight of meat.

The production process as described above may further involve additional steps. For example, additives (sweeteners, seasonings, starch, bread crumbs, vegetables, etc.) may be added at an appropriate step. Moreover, ground meat or meat blocks may be added to the foamed composition. The types and amounts of these additives may be appropriately selected within the scope known by those skilled in the art, so long as the specific gravity of the final product falls within the range of from 0.3 to 0.95. The addition timing is not particularly restricted too. In particular, sweeteners, seasonings, etc. may be added either before or after the foaming by stirring. The production process of the present invention may involve additional procedures.

To further illustrate the present invention in greater detail, the following Examples will be given.

(Example 1)

35 g of sodium chloride was added to 1 kg of ground lean beef which was then subjected to shio-zuri by using a silent cutter (manufactured by Bibun). When the mixture became viscous, 10 g of guar gum and 100 g of egg albumen were added thereto and the resultant composition was foamed by stirring with a silent cutter (manufactured by Bibun). When the specific gravity of the composition reached about 0.70, 50 g of potato starch, 20 g of sodium glutamate, 5 g of pepper and 500 ml of water were added thereto followed by well mixing. The composition showed a specific gravity of 0.80 at this stage. Next, the composition was molded into a circular form (diameter: 8 cm, thickness: 1cm) and heated in hot water at 85 to 95°C for 15 minutes to thereby give a foamed processed beef product.

This processed beef product had a soft texture never observed in the conventional products. It tasted soft and good when fried in butter or sandwiched.

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CLAIMS

1. A process for producing foamed processed meat foods, which comprises mixing meat with sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring, and then moulding and heating it; wherein water is added between the shio-zuri and the subsequent foaming by stirring or between the foaming by stirring and the subsequent moulding.

2. A process according to claim 1, in which at least 20 parts by weight of water are added per 100 parts by weight of meat.

3. A foamed process meat food produced by the process according to claim 1 or 2.

4. A foamed processed meat food according to claim 3, having a specific gravity of from 0.3 to 0.95.

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FOAMED PROCESSED MEAT FOODS

ABSTRACT

Disclosure is made of a process for producing foamed processed meat foods which comprises mixing meat with sodium chloride under agitation (so-called "shio-zuri"), foaming the resultant composition by stirring and then molding and heating it; wherein water is added between the shio-zuri and the subsequent foaming by stirring or between the foaming by stirring and the subsequent molding; and foamed processed meat foods produced by this process. The processed meat foods of the present invention are characterized by soft and light texture.

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(54)Title: FOAMED MEAT PROCESSED FOODS title changed.

(54)発明の名称 気泡入り畜肉加工食品

(57) Abstract

Disclosed are a method of manufacturing foamed meat processed foods by rubbing salt to meat, foaming it by mixing, and then forming and heating it, and foamed meat processed foods manufactured by the method. Meat processed foods according to the invention have a feature of providing a soft, light feeling of eating.

（５７）要約

畜肉を塩ずりし、撹拌により起泡させた後、成型して加熱することによる気泡入り畜肉加工食品の製造方法、およびその方法により製造した気泡入り畜肉加工食品を開示する。本発明の畜肉加工食品は、ソフトで軽い食感を有する点に特徴がある。

情報としての用途のみ
ＰＣＴに基づいて公開される国際出願をパンフレット第一頁にＰＣＴ加盟国を同定するために使用されるコード

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