EGG NUGGETS

CROSS-REFERENCE TO RELATED APPLICATION(S)

The co-pending patent application filed on even date, Published U.S. Application No. 2005/0202151, entitled "Method of Preparing Egg Nuggets", is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

The present invention generally relates to an egg-based material. Additionally, the present invention relates to a cooked egg-based food product that exhibits freeze/thaw stability upon being frozen and reheated.

Eggs, especially eggs produced by chickens, are a main food staple in the diets of many people. Eggs are often used as a main course for breakfast and may be prepared in a variety of ways. For example, eggs may be scrambled, fried, boiled, and poached. Cooked eggs are nutritious and contain significant amounts of beneficial protein.

One challenge is cooked eggs traditionally cannot be held or stored for extended periods of time after being cooked while maintaining the desirable organoleptic properties of freshly cooked eggs. When eggs are heated during cooking, the proteins within the eggs form a coagulated mass of protein. Besides containing coagulable proteins, eggs typically contain between about 75 weight percent and about 80 weight percent water, based on the total weight of the eggs. Much of this water contained in eggs prior to cooking is free water that is not chemically bound to any particular component of the eggs. When eggs are heated during cooking, at least some of this free water is trapped within the coagulated mass of protein.

When cooked eggs containing the coagulated mass of proteins are frozen, the free water trapped within the coagulated mass forms ice crystals. When the frozen eggs are thawed and the ice crystals trapped within the coagulated mass thaw along with the coagulated mass, much of the free water resulting from thawing of the ice crystals typically does not remain entrapped within the coagulated mass. Instead, free water resulting from thawing of the ice crystals formerly entrapped within the frozen coagulated mass has a tendency to separate and "sweep" away from the thawed coagulated mass.

Loss of the entrapped free water upon thawing of the frozen cooked eggs adversely affects the organoleptic properties of the thawed coagulated mass. Loss of entrapped free water from the thawed cooked egg tends to cause the thawed coagulated mass to become tough, chewy, and less palatable to human beings. The thawed coagulated mass may also be visually unappealing because of the visible escape of free water from the thawed coagulated mass.

One potential approach to solving the problem of free water escape from the thawed coagulated mass entails removing moisture from raw eggs prior to cooking the eggs. If all of the free water is removed from raw eggs, only egg solids, possibly with some bound amount of water, remains. Egg solids, also known as powdered eggs, that remain following free water removal from raw eggs have a long shelf life and may be reconstituted by combining the egg solids with water. However, the reconstituted eggs, upon heating to cook and form the coagulated mass, do not have the same organoleptic properties, such as taste, texture, or visual appearance, of freshly cooked eggs formed by cooking raw eggs that have not been subjected to moisture removal. Consequently, a need continues to exist for a better solution to the problem of free water escape from the thawed form of frozen, previously-cooked eggs and similarly from the thawed form of frozen, previously-cooked egg-based products.

BRIEF SUMMARY OF THE INVENTION

The present invention includes various egg-based materials. One embodiment of the egg-based material includes an egg-based substance, a water-absorbent thickener distributed throughout the egg-based material, and pieces of supplemental food distributed throughout the egg-based material. The egg-based substance includes a natural liquid egg component, and the water-absorbent thickener is effective to maintain distribution of the pieces of supplemental food throughout the egg-based material. The present invention also includes a cooked food product where the cooked food product includes a form of any of the egg-based materials wherein the natural liquid egg component is coagulated.

DETAILED DESCRIPTION

The present invention generally relates to an egg-based material. Additionally, the present invention relates to a cooked egg-based product that exhibits freeze/thaw stability upon being frozen and reheated.

An egg-based substance that includes at least one natural liquid egg component is prepared. The egg-based substance is combined with at least one thickening agent to form the egg-based material. The thickening agent(s) absorb water, such as free water present in the natural liquid egg component(s). Pieces of supplemental food, such as diced cheese, meat, fish, shellfish, vegetables, fruit, and grains may optionally be incorporated in the egg-based material. The egg-based material is heated to cook the egg-based material and form the cooked egg-based product. The cooked egg-based product exhibits freeze/thaw stability. The cooked egg-based product may optionally be battered and/or breaded and fried to form a fried egg-based product. The fried egg-based product also exhibits freeze/thaw stability.

As used herein, the term "egg" means the round or oval female reproductive body of an animal, such as a bird, usually consisting of an embryo (egg yolk) surrounded by nutrient material (egg white) and a protective covering (egg shell). Though reptiles, amphibians, and other animals also produce eggs, the eggs of birds are of principal interest for use in the present invention. Nonetheless, eggs produced by reptiles, amphibians, and other animals do fall within the scope of the term "egg," as used herein. Eggs produced by chickens, ducks, geese, and ostriches are some non-exhaustive examples of bird eggs that may be employed when practicing the present invention. Desirably, eggs produced by chickens are employed when practicing the present invention.

As used herein, the term "natural liquid egg component" means a naturally-occurring liquid egg component, such as liquid egg white, liquid egg yolk, liquid whole egg, and any combination of any of these in any proportion, where the liquid egg component has not been subjected to any processing to remove naturally-occurring water from the naturally-occurring liquid egg component and has not been subjected to any processing that causes more than a de minimis change in the natural liquid nature of the naturally-occurring liquid egg component. As used herein, the term "liquid whole egg" means the naturally occurring combination of liquid egg white and liquid egg yolk typically present in an egg.

The egg-based substance includes at least one natural liquid egg component, such as liquid egg white, liquid egg yolk, liquid whole egg, and any combination of any of these in any