HUMAN-DERIVED KERATIN HAIR FILLER COMPOSITIONS AND METHODS OF USE

RELATED APPLICATION

This application claims the benefit of U.S. Provisional Patent Application Serial Number 62/741,150 filed October 4, 2018, which is incorporated by reference in its entirety.

BACKGROUND

Keratins are fundamental compounds of the skin, the hair, the eyelashes and the nails. These fibrous proteins contribute towards their form, elasticity and strength. Hair is a unique source of human keratins because it is one of the few human sources that are readily available, inexpensive and provides protein structure equivalent to hair.

Environmental factors such as sunlight, blow drying, flat ironing, combing, brushing, exposure to harsh condition (chlorine in pools) colorants and chemicals related to styling and the coloring process deteriorate and weaken the hair as well as destroy the structure and the surface of hair. All of these factors stress and damage the hair. Particularly, the coloring process intentionally stresses and swells the hair to allow the dye molecules to penetrate the shaft and impart or remove color. As hair is damaged the surface of hair is compromised enabling the loss of protein and moisture, so the hair is left brittle and more prone to breakage. As a result, the hair dries and becomes brittle, split ends are formed or the hair may break. Hair constituent proteins may be removed by treatments with cosmetics such as shampoos, perm chemicals, or hair dyes. As a result, the hair is thinner and the likelihood of hair damage increases. Hair is unable to restore itself to its original state without assistance.

Accordingly, there remains a need for a hair product that repairs hair that was previously colored or combined with a hair colorant composition to repair as well as prevent damage to hair.

SUMMARY

In one aspect, there is provided a keratin protein filler composition for colored, treated, bleached or damaged hair comprising:

at least one keratin protein derived from human hair, the at least one keratin protein comprising one or more of alpha-kerateine, gamma-kerateine, or a

combination thereof;

wherein the at least one keratin protein is formulated as a powder, gel, paste or cream for introduction to colored hair, and

wherein the at least one keratin protein is not denatured and maintains natural keratin protein conformation.

In another aspect, there is provided a hair colorant kit comprising

at least one keratin protein filler composition as defined above;

at least one hair colorant composition; and

optionally, at least one set of instructions for use.

In another aspect, there is provided a method of repairing and coloring hair, the method comprising the steps of:

mixing a hair colorant composition with a keratin protein filler composition to form a hair colorant mixture; and

applying the hair colorant mixture to a user's hair to both color and repair the hair contemporaneously.

In another aspect, there is provided a method for reducing breakage of or damage to colored hair, the method comprising the steps of:

applying the hair colorant mixture as defined above to a surface of the hair in need of treatment; and

rinsing the hair to remove the hair colorant mixture thereby increasing hair thickness to reduce hair breakage and damage to the colored hair.

In another aspect, there is provided a method of reducing hair frizziness in colored hair comprising the steps of:

applying the hair colorant mixture as defined above to a surface of the hair in need of treatment; and

rinsing the hair to remove any excess hair colorant mixture thereby causing the hair to exhibit less frizz.

In another aspect, there is a method for reducing breakage of or damage to hair, the method comprising the steps of:

applying to a surface of the hair in need of treatment a hair treatment composition, the hair treatment composition comprising:

one or more of a shampoo, conditioner, mask, or paste; and

a keratin protein filler composition,

wherein, upon application, hair thickness is increased to reduce hair breakage and damage to the hair.

According to one ~~aspect~~example, a keratin protein filler composition for colored hair is provided. The keratin protein filler composition includes at least one keratin protein derived from human hair. The keratin protein may be formulated as a powder, gel, paste or cream. According to one ~~embodiment~~example, the keratin protein includes one or

more of alpha-keratin, gamma-keratin, or a combination thereof. According to one ~~embodiment~~example, the keratin protein includes at least one kerateine such as, for example, alpha-kerateine, gamma-kerateine, or a combination thereof. According to one ~~embodiment~~example, the powder is formed by a process that includes the steps of flash freezing the keratin protein derived from human hair to form a frozen cake, drying the frozen cake, and pulverizing the cake to form the keratin protein powder. According to one ~~embodiment~~example, the keratin protein is not denatured and maintains natural keratin protein conformation.

According to one ~~aspect~~example, a hair colorant kit is provided. The hair colorant kit includes at least one keratin protein filler composition, at least one hair colorant composition, and at least one set of instructions for use. According to one ~~embodiment~~example, the kit further includes a colorant developer component. According to one ~~embodiment~~example, the colorant composition includes one or more compounds to impart temporary or semi-permanent color hair. According to one ~~embodiment~~example, the colorant composition optionally includes a bleaching compound to make the hair a lighter shade upon introduction. According to one ~~embodiment~~example, the colorant composition optionally includes one or more dyes or pigments to impart a desired hair color. According to one ~~embodiment~~example, the colorant composition optionally includes one or more oxidizing or complexing agents, dyes or pigments, coupling compounds (i.e., couplers), ammonia, fatty alcohols, emulsifying agents, surfactants color precursors alkalizing agents, antioxidants, or perfumes. According to one ~~embodiment~~example, the colorant kit may optionally include at least one of a shampoo, a hair conditioner, or a combination thereof. The shampoo and conditioner may optionally include pink pomelo, hydrolyzed quinoa, artichoke leaf, vitamin A, vitamin C, vitamin B1, zinc, gotu kola, tapioca starch, kaolin clay, pea protein, phospholipids, brown algae, silica silylate, hydrated silica, asiaticoside/madecassoside, panthenol, cypress, baobab seed oil, or any combination thereof.

According to one ~~aspect~~example, a method of repairing and coloring hair is provided. According to one ~~embodiment~~example, the hair is repaired by filling in damaged areas on a hair strand with the hair filler composition as provided herein. The repair and coloring method includes the steps of mixing a hair colorant composition with a keratin protein filler composition to form a hair colorant mixture and applying the hair colorant mixture to a user's hair to both color and repair the hair in a contemporaneous manner (i.e., at the approximate same time). The hair colorant mixture may be in the form of a paste, gel, or cream. According to one ~~embodiment~~example, the method further includes the step of mixing a developer component with the hair colorant composition

prior to mixing with the keratin protein filler composition. According to one ~~embodiment~~example, the hair colorant mixture refills any keratin that may be eroded from the hair thereby strengthening and thickening the hair. The hair colorant mixture repairs any existing damage to the hair and prevents damage to the hair that might be caused by application of the hair colorant composition. Thus, the resulting colored hair is healthier than that prior to application and not damaged as is typical upon application of harsh colorant compounds to hair.

According to one ~~aspect~~example, a method for reducing breakage of colored hair is provided. The method includes the steps of applying a hair colorant mixture as provided herein to a surface of the hair in need of treatment and rinsing the hair to remove the hair colorant mixture thereby increasing hair thickness to reduce hair breakage of the colored hair.

According to one ~~aspect~~example, a method of reducing hair frizziness in colored hair is provided. The method includes the steps of applying a hair colorant mixture as provided herein to a surface of the hair in need of treatment and rinsing the hair to remove any excess hair colorant mixture thereby causing the hair to exhibit less frizz in the colored hair.

According to another ~~aspect~~example, a method of increasing hair strand thickness of colored hair is provided. The method includes the step of administering, applying or otherwise introducing the keratin protein filler composition to the surface of a mammal's hair in need of treatment. The hair may be previously colored or colored at the time of administration.

According to one ~~aspect~~example, a method for reducing breakage of or damage to hair is provided. The hair may be colored or natural, non-colored hair. The method includes the steps of applying to a surface of the hair in need of treatment a hair treatment composition, the hair treatment composition including one or more of a shampoo, conditioner, mask, or paste and a keratin protein filler composition. Upon application, hair thickness is increased to reduce hair breakage and damage to the hair. According to one ~~embodiment~~example, the method further includes the step of rinsing the hair to remove the hair treatment composition. According to one ~~embodiment~~example, the hair treatment composition is rinsed off immediately upon application. According to one ~~embodiment~~example, the hair treatment composition is left in contact with the hair for up to ten minutes, twenty minutes, or thirty minutes prior to rinsing. According to another ~~embodiment~~example, the hair treatment composition is left in contact with the hair indefinitely.

CLAIMS

What is claimed is:

1. A keratin protein filler composition for colored, treated, bleached or damaged hair comprising:

at least one keratin protein derived from human hair, the at least one keratin protein comprising one or more of alpha-kerateine, gamma-kerateine, or a combination thereof;

wherein the at least one keratin protein is formulated as a powder, gel, paste or cream for introduction to colored hair, and

wherein the at least one keratin protein is not denatured and maintains natural keratin protein conformation.

~~2. The keratin protein filler composition of claim 1, wherein the keratin protein comprises one or more of alpha-kerateine, gamma-kerateine, or a combination thereof.~~

~~3~~2. The keratin protein filler composition of claim 1, wherein the powder is formed by a process that includes the steps of :

flash freezing the keratin protein derived from human hair to form a frozen cake;

drying the frozen cake; and

pulverizing the frozen cake to form the keratin protein powder.

~~4. The keratin protein filler composition of claim 1, wherein the keratin protein is not denatured and maintains natural keratin protein conformation.~~

~~5~~3. A hair colorant kit comprising

at least one keratin protein filler composition as provided in claim 1;

at least one hair colorant composition; and

optionally, at least one set of instructions for use.

~~6~~4. The hair colorant kit of claim ~~5~~3, further comprising a colorant developer component.

~~7~~5. The hair colorant kit of claim ~~5~~3, wherein the hair colorant composition

includes one or more compounds to impart temporary or semi-permanent color hair.

~~8~~6. The hair colorant kit of claim ~~5~~3, wherein the hair colorant composition optionally includes a bleaching compound to make the hair a lighter shade upon introduction.

~~9~~7. The hair colorant kit of claim ~~5~~3, wherein the hair colorant composition optionally includes one or more dyes or pigments to impart a desired hair color.

~~10~~8. The hair colorant kit of claim ~~5~~3, further comprising at least one shampoo, at least one hair conditioner, or a combination thereof.

~~11~~9. The hair colorant kit of claim ~~5~~3, wherein the hair colorant composition optionally includes one or more oxidizing agents, complexing agents, dyes, pigments, coupling compounds, ammonia, fatty alcohols, emulsifying agents, surfactants color precursors alkalizing agents, antioxidants, perfumes, or a combination thereof.

~~12~~10. A method of repairing and coloring hair, the method comprising the steps of:

mixing a hair colorant composition with a keratin protein filler composition to form a hair colorant mixture; and

applying the hair colorant mixture to a user's hair to both color and repair the hair contemporaneously.

~~13~~11. The method of claim ~~12~~10, further comprising the step of mixing a developer component with the hair colorant composition prior to mixing with the keratin protein filler composition.

~~14~~12. The method of claim ~~12~~10, wherein hair colorant mixture refills any keratin that may be eroded from the hair thereby strengthening and thickening the hair.

~~15~~13. The method of claim ~~12~~10, wherein the hair colorant mixture repairs any existing damage to the hair and prevents damage to the hair that might be caused by application of the hair colorant composition.

~~16~~14. A method for reducing breakage of or damage to colored hair, the method comprising the steps of:

applying the hair colorant mixture of claim ~~12~~ 10 to a surface of the hair in need of treatment; and

rinsing the hair to remove the hair colorant mixture thereby increasing hair thickness to reduce hair breakage and damage to the colored hair.

~~17~~15. A method of reducing hair frizziness in colored hair comprising the steps of:

applying the hair colorant mixture of claim ~~12~~10 to a surface of the hair in need of treatment; and

rinsing the hair to remove any excess hair colorant mixture thereby causing the hair to exhibit less frizz.

~~18~~16. A method for reducing breakage of or damage to hair, the method comprising the steps of:

applying to a surface of the hair in need of treatment a hair treatment composition, the hair treatment composition comprising:

one or more of a shampoo, conditioner, mask, or paste; and

a keratin protein filler composition~~.~~,

wherein, upon application, hair thickness is increased to reduce hair breakage and damage to the hair.

~~19~~17. The method of claim ~~18~~16, further comprising the step of rinsing the hair to remove the hair treatment composition.

~~20~~18. The method of claim ~~19~~17, wherein the hair treatment composition is left in contact with the hair for up to ten minutes prior to rinsing.