METHODS, COMPOSITIONS AND USES RELATING THERETO.

The present invention relates to a method of treating a dyed material, to compositions for use in such methods and to uses relating thereto. In particular the present invention relates to a method of treating a dyed keratinous material, especially hair. The method is especially useful for reducing, inhibiting or preventing the loss of colour from dyed materials, especially dyed hair.

Procedures for dyeing materials, especially hair and other keratinous materials, have been in existence for many years. However the dyed materials lose colour intensity and vibrancy after dyeing. One cause of this loss of colour is believed to be leaching of dye molecules from the materials when in contact with water or other solvents which can dissolve/solubilise the dyes and cause them to diffuse out of the material. This colour loss can thus occur during processes such as washing of the material (or shampooing in the case of hair) or during other processes where the material comes into contact with water or other solvents that can leach dyes from the material. The problem is greater in the case of small dye molecules as these are more mobile and can thus be leached from the material at a faster rate than larger dye molecules. As a result, repeated washing of materials can lead to colour loss over time. This can also cause a colour shift, for example whereby one or more dye compounds present in a mixture used to colour a material are leached from the material to a greater extent than the others during washing.

For textile materials and fabrics colour loss can occur during washing of the material, either in a hand washing process or in an automatic washing machine.

One effective means by which colour loss can be prevented or inhibited is by treatment with formaldehyde. However formaldehyde is a suspected carcinogen and thus its use in cosmetic compositions is strictly regulated and highly undesirable. There have been numerous attempts to provide alternative means for combatting colour loss from hair. However to date none of these have been completely satisfactory and there therefore exists a need to develop further improved strategies.

Summary of Invention

It is an aim of the present invention to provide means for reducing, inhibiting or preventing colour loss from dyed materials.

In one aspect of the disclosure, there is provided a method of combatting colour loss from a dyed material, the method comprising the steps of (1) contacting the material with a composition comprising a hydroxy substituted aldehydes, having one hydroxy substituent; and (2) contacting the material with a composition comprising a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms.

In another aspect of the disclosure, there is provided a method of colouring hair, the method comprising (a) contacting the hair with a colouring composition; and (b) contacting the hair with (1) a composition comprising aliphatic hydroxy substituted aldehyde having one hydroxy substituent at the 2 position; and (2) a composition comprising a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid, wherein the carboxylic acid has 4 to 10 carbon atoms; wherein step (b) is carried out before step (a) or step (b) is carried out after step (a).

In a further aspect of the disclosure, there is provided a hair care composition comprising an aliphatic hydroxy substituted aldehydehaving one hydroxy substituent at the 2 position; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid, wherein the carboxylic acid has 4 to 10 carbon atoms.

In yet another aspect of the disclosure, there is provided the use of a hydroxy substituted aldehyde having one hydroxy substituent; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms to combat colour loss from dyed hair.

In another aspect of the disclosure, there is provided a packaged hair colouring product comprising one or more compositions wherein the one or more compositions together comprise at least one dye compound and/or one dye precursor compound; an aliphatic hydroxy substituted aldehyde having one hydroxy substituent at the 2 position; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms.

Detailed Description of the Invention

According to a first aspect of the present invention there is provided a method of combating colour loss from a dyed material, the method comprising the steps of:

Claims

1. A method of combatting colour loss from a dyed material, the method comprising the steps of:

   (1) contacting the material with a composition comprising a hydroxy substituted aldehyde having one hydroxy substituent;

   (2) contacting the material with a composition comprising a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms.

2. A method according to claim 1 wherein the material is a keratinous material.

3. A method according to claim 1 or claim 2 wherein the material is human hair or animal hair, preferably human hair.

4. A method according to claim 3 wherein the material is growing human hair or animal hair, preferably growing human hair.

5. A method according to any preceding claim wherein step (1) is carried out before step (2).

6. A method according to any preceding claim wherein step (2) is carried out before step (1).

7. A method according to any preceding claim wherein steps (1) and (2) are carried out simultaneously and the material is contacted with a single composition comprising: a hydroxy substituted aldehyde having one hydroxy substituent; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms.

8. A method of colouring hair, the method comprising:

   (a) contacting the hair with a colouring composition; and

   (b) contacting the hair with:

      (1) a composition comprising an aliphatic hydroxy substituted aldehyde having one hydroxy substituent at the 2 position; and

      (2) a composition comprising a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid wherein the carboxylic acid has 4 to 10 carbon atoms; wherein step (b) is carried out before step (a) or step (b) is carried out after step (a).

9. A method according to any preceding claim wherein the aldehyde is an alpha-substituted aldehyde.

10. A method according to any preceding claim wherein the aldehyde is selected from 2-hydroxypropanal, 2-hydroxyhexanal or 2-hydroxyoctanal.

11. A method according to any preceding claim comprising a first aldehyde having less than 10 carbon atoms and a second aldehyde having 10 or more carbon atoms.

12. A method according to claim 11 wherein the second aldehyde is selected from 2-hydroxydecanal, 2-hydroxydodecanal and 2-hydroxytetradecanal.

13. A method according to claim 11 wherein the first aldehyde is selected from 2-hydroxyhexanal, 2-hydroxyoctanal, 2-hydroxypropanal, and 2-hydroxybutanal, and the second aldehyde is selected from 2-hydroxydecanal, 2-hydroxydodecanal and 2-hydroxytetradecanal.

14. A method according to any preceding claim wherein the chelating agent is selected from DTPA, GLDA and mixtures thereof.

15. A method according to any preceding claim wherein the amine salt is the diethanolamine or triethanolamine salt of octanoic acid or hexanoic acid.

16. A method according to any preceding claim which provides a significant reduction in colour loss after 1 to 3 washes such that the colour is visibly more intense compared with hair treated by an equivalent means excluding the aldehyde and/or succinimidyl ester and the chelating agent and/or amine salt.

17. A method according to any preceding claim which provides a reduction in colour loss of at least 10% after three washes compared with hair treated by an equivalent method excluding the aldehyde and/or succinimidyl ester and the chelating agent and/or amine salt.

18. The use of a hydroxy substituted aldehyde having one hydroxy substituent ; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid, wherein the carboxylic acid has 4 to 10 carbon atoms, to combat colour loss from dyed hair.

19. A packaged hair colouring product comprising one or more compositions wherein the one or more compositions together comprise at least one dye compound and/or one dye precursor compound; an aliphatic hydroxy substituted aldehyde having one hydroxy substituent at the 2 position; and a polycarboxylic acid derived chelating agent and/or a salt of an amine and a carboxylic acid, wherein the carboxylic acid has 4 to 10 carbon atoms.

20. A method according to claim 1 wherein the dyed material is a textile material, preferably a textile material comprising wool.

21. A method according to claim 1 or claim 20 which combats colour loss resulting from washing a dyed textile material in a laundry washing process.