METHODS, COMPOSITIONS AND USES RELATING THERETO.

The present invention relates to a method of treating a 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 keratinous material, especially hair, to provide a benefit to the material.

The appearance, condition and cleanliness of their hair is of great significance to many people. As a result there is a vast array of hair care products available offering a wide range of benefits and containing a huge number of different components. However popular hair styles change continually with fashion trends and technological developments in hair styling appliances means that there is a continuing need for different and improved hair care compositions. Furthermore as we learn more about the toxicity of certain chemicals and their environmental impact there is an increasing requirement to take these considerations into account when developing cosmetic products.

For example one previously used constituent of cosmetic hair care compositions is formaldehyde. However formaldehyde is a suspected carcinogen and thus its use in cosmetic compositions is now strictly regulated and highly undesirable.

The appearance, condition and cleanliness of textiles and fabric materials is also of considerable importance and the stresses encountered by these materials in the environments in which they are used may have a deleterious effect on them.

It is an aim of the present invention to provide means for enhancing at least one property of a material.

SUMMARY

In one aspect, there is provided a method of treating a material, the method comprising contacting the material with a composition comprising a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

In another aspect, there is provided a hair care composition comprising a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

In yet another aspect, there is provided the use of a hydroxy-substituted aldehyde to enhance at least one property of hair wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

In a further aspect, 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 and a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

DETAILED DESCRIPTION

According to a first aspect of the present invention there is provided a method of treating a material, the method comprising contacting the material with a composition comprising a hydroxy-substituted aldehyde.

The present invention relates to a method of treating a material. In some embodiments the material may be textile material. In such embodiments the textile material suitably comprises wool and preferably comprises wool as a major proportion thereof.

In preferred embodiments the material is a keratinous material. More preferably the material comprises keratinous fibres. Preferably the material is hair. The hair may be human or animal hair. In especially preferred embodiments the method of the present invention is a method treating human hair. Most preferably it is a method of treating human hair growing on the head.

Claims

1. A method of treating a material, the method comprising contacting the material with a composition comprising a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

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

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

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

5. A hair care composition comprising a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

6. The hair care composition according to claim 5 comprising two or more hydroxy substituted aldehydes.

7. The method according to claims 1-4 or the composition according to claims 5-6, wherein the aldehyde is an α-hydroxy aldehyde.

8. The method according to claims 1-4 or 7, or the composition according to claims 5-7 wherein the aldehyde is selected from 2-hydroxypropanal, 2-hydroxyhexanal, 2-hydroxyoctanal or glyceraldehyde.

9. The method according to claims 1-4 or 7-8 or the composition according to claim 5-8, wherein the aldehyde is selected from 2-hydroxypropanal, 2-hydroxyhexanal or 2-hydroxyoctanal.

10. The method according to claims 1-4 or 7-9 or the composition according to claims 5-9 wherein the composition comprises a first hydroxy-substituted aldehyde having less than 10 carbon atoms and a second hydroxy-substituted aldehyde having 10 or more carbon atoms.

11. The method or composition according to claim 10 wherein the second hydroxy-substituted aldehyde is selected from 2-hydroxydecanal, 2-hydroxydodecanal and 2-hydroxytetradecanal.

12. The method or composition according to claim 10 wherein the first hydroxy-substituted aldehyde is selected from 2-hydroxypropanal, 2-hydroxyhexanal or 2-hydroxyoctanal and the second hydroxy-substituted aldehyde is selected from 2-hydroxydecanal, 2-hydroxydodecanal and 2-hydroxytetradecanal.

13. The method according to claims 1-4 or 7-12 or composition according to claims 5-12, wherein the composition comprising the aldehyde further comprises an amine salt of a carboxylic acid.

14. The method according to claims 1-4 or 7-13 or composition according to claims 5-13, wherein the composition comprising the aldehyde further comprises a polycarboxylic acid derived chelating agent.

15. The method according to claims 1-4 or 7-14 or composition according to claims 5-14, wherein the composition comprising the aldehyde further comprises a succinimidyl ester.

16. The method according to claims 1-4 or 7-15 or composition according to claims 5-15, wherein the comprising the aldehyde further comprises a crosslinking agent comprising two or more maleic acid derived reactive moieties and a linker having two or more amino groups.

17. The method according to claims 1-4 or 7-16 or composition according to claims 5-16, wherein the composition is selected from a shampoo composition, a conditioning composition, a hair dyeing/colouring composition and a hair styling composition (including a hair permanent waving composition and a hair permanent straightening/relaxing composition).

18. The method according to claims 1-4 or 7-17 or composition according to claims 5-17, wherein the composition comprising the aldehyde further comprises 1 to 30 wt.% of one or more surfactants, preferably one or more anionic surfactants.

19. The method according to claims 1-4 or 7-18 or composition according to claims 5-18, which provides one or more benefits selected from increased gloss or shine, improved combability, improved strength, increased softness, reduced protein loss, improved thermal durability, increased chemical resistance, increased waviness and increased straightness.

20. The method according to claim 16 wherein the benefit may be temporary, semi-permanent or permanent.

21. Use of a hydroxy-substituted aldehyde to enhance at least one property of hair wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

22. The use according to claim 21 of two or more hydroxy-substituted aldehydes to enhance at least one property of hair.

23. 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 and a hydroxy-substituted aldehyde; wherein the aldehyde has at least 3 carbon atoms and is an aliphatic aldehyde having one hydroxy substituent and has a hydroxy substituent at the 2, 3 or 4 position.

24. The method according to claim 1 wherein the material is a textile material, preferably a textile material comprising wool.