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HAIR DYEING COMPOSITION AND METHOD

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3 Claims

ABSTRACT OF THE DISCLOSURE

Oxidation hair dyeing composition comprises a liquid carrier in which there is distributed an alkali hydroxide or ammonium hydroxide as alkalinizing agent and an effective amount of one of the following 2-methyl-hydroxyethyl-amino-5-aminopyridine, 2-cyclohexylamino-5-aminopyridine, 2-(methoxypropylamino)-5-aminopyridine, 2-(dimethylamino-propylamino)-5-aminopyridine, 2-phenylamino-5-aminopyridine or 2-hydroxyethylamino-5-aminopyridine-hydrochloride.

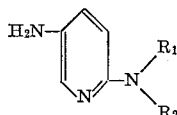
The present invention relates to a composition and method for dyeing hair and, more particularly, the present invention is concerned with imparting to hair a red to brownish-reddish purple, reddish-brown or bluish-reddish brown color or color component which is frequently desirable for modifying other dye components in order to give the hair the desired final color.

For the dyeing of hair, dye intermediates may be used which, upon oxidation, will be developed to form the effective dye. Usually, oxidation of the dye intermediate is carried out shortly before or during the dyeing of the hair. In many cases, the dye intermediates are aromatic amines which in an alkaline, preferably ammoniacal medium and possibly with the addition of an oxidizing agent will give to the hair the desired color.

It is an object of the present invention to provide a new hair dyeing composition and a method of applying the same, which per se, or in combination with other hair dyeing agents, will permit coloring the hair, particularly in the range of reddish or orange nuances.

Other objects and advantages of the present invention will become apparent from a further reading of the description and of the appended claims.

With the above and other objects in view, the present invention contemplates a composition of matter suitable for use in the oxidative dyeing of hair which comprises a carrier material adapted for application to human hair and having distributed therethrough an alkalinizing agent and an effective amount of at least one substance selected from the group consisting of compounds of the general formula:



wherein R_1 is selected from the group consisting of hydrogen, aryl, cyclohexyl, hydroxyalkyl, aminoalkyl, methoxyalkyl and alkoxyalkyl, and R_2 is selected from the group consisting of aryl, cyclohexyl, hydroxyalkyl, aminoalkyl, methoxyalkyl and alkoxyalkyl, and the hydrochlorides thereof.

Preferably, the alkoxyalkyl will be ethoxyalkyl.

Preferred substances according to the present invention are 2-methyl-hydroxyethyl-amino-5-aminopyridine, 2-cyclohexylamino-5-aminopyridine, 2-(γ -methoxypropylamino)-5-aminopyridine, 2-(γ -dimethylamino-propylamino)-

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5-aminopyridine, 2-phenylamino-5-aminopyridine and 2-hydroxyethylamino-5-aminopyridine-hydrochloride.

It is also within the scope of the present invention and frequently preferred to include at least one oxidation hair dye intermediate in the hair dyeing composition, and preferably a hair dye intermediate selected from the group consisting of p-phenylenediamine, p-toluylenediamine, m-phenylenediamine, m-toluylenediamine, p-aminophenol, p-amino-N-dimethylaniline, 4,4'-diamino-diphenylamine, m-diaminoanisole, m-diethylaminophenol, 2,3-diaminopyridine, 2,6-diaminopyridine, m-aminophenol, o-aminophenol, alpha-naphthol, 2,6-dioxypyridine, resorcinol, catechol, pyrogallol, hydroquinone, phloroglucinol and 2,7-dioxynaphthalene.

According to a preferred method of carrying out the present invention, there is applied to the hair a first substance which comprises a carrier material adapted for application to human hair and having distributed therethrough an alkalinizing agent and a dye intermediate such as described above and adapted to be oxidized into a dye, and also a second substance which comprises a carrier material adapted for application to human hair and having distributed therethrough the above described composition of matter of the present invention and an oxidizing agent, such as hydrogen peroxide.

Surprisingly, it has been found that the nuances in the hair coloring which are obtained in accordance with the present invention are particularly desirable and advantageous either as coloring of hair per se, or in order to influence the shade or nuance achieved with other hair dyeing compositions.

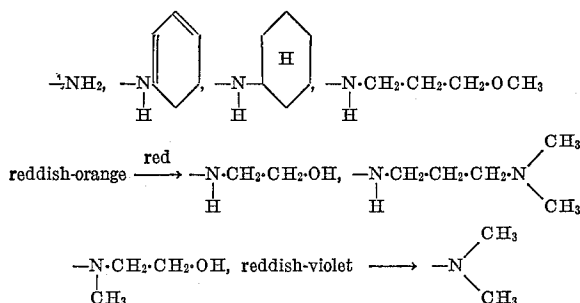
The hair coloring obtained according to the present invention is very stable and, once it is obtained, will not be changed by subsequent mechanical or chemical treatment of the hair.

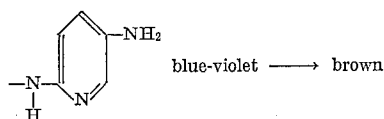
Particularly, the hair colorings achieved in accordance with the present invention are wash-fast, light-fast and diffusion-fast and stable at various pH and achieve an evenness of coloration which is far superior to what can be obtained by using the nitro-dyestuffs which conventionally are employed for obtaining red and orange hair colorings.

The compounds of the present invention may either be used singly or in combination with each other or in combination with per se known benzoid oxidation dyestuffs or other pyridine oxidation dyes.

Whereas by using non-substituted 2,5-diamino-pyridine it is only possible to get a single type of red coloration of the hair, the compounds of the present invention permit the dyeing of the hair in great number of new nuances and, as pointed out above, the dyed hair retains its color under substantially all conditions to which the hair conventionally might be exposed.

Without limiting the invention to any specific theoretical explanation, it may be assumed that the influence of constituents at the second amino group of the 2,5-diamino-pyridine is such that the bathochromic effect rises from orange via red towards bluish violet, in the following sequence of constituents:





ble, they will serve to describe the effect achieved by replacing the 2-hydroxyethylaminopyridine-hydrochloride of Example I with the compounds of the respective examples and by proceeding otherwise in accordance with Examples I and II.

TABLE I

Example No.	Structural formula	Hair color obtained
3-----		Brownish red-violet.
4-----		Do.
5-----		Reddish brown.
6-----		Bluish red-brown.
7-----		Brownish red-violet.

The methods of producing the substituted 2,5-diaminopyridines of the present invention are known per se and thus need not be described in detail herein.

The, per se, colorless pyridine derivatives may be developed on the hair to dyes, either by the influence of the oxygen of the air without application of an oxidizing agent such as hydrogen peroxide or, if stronger coloring is desired, the developing of the dye may be carried out by application of hydrogen peroxide or the like to the hair.

The following examples are given as illustrative only, without, however, limiting the invention to the specific details of the examples.

The well-known conventional additives such as thickening agents, emulsifiers and the like have been omitted from the examples in order to stress the inventive features.

EXAMPLE I

2.2 grams of 2 - hydroxyethylamino-5-aminopyridine-hydrochloride are dissolved in 4.0 grams 25% aqueous ammonia and 94.0 grams water.

Upon applying the thus formed solution to blond colored hair and allowing contact between the solution and the hair for about 30 minutes, followed by rinsing and drying, it will be found that the hair has obtained a beautiful purple-red color tone of high wet fastness.

EXAMPLE II

70 grams of the solution obtained according to Example I are mixed with 30 ml. 6% hydrogen peroxide and the mixture is applied to the hair. After allowing contact between the mixture and the hair for 20 minutes, at room or body temperature, followed by rinsing, a strong and highly stable purple-red hair color is obtained.

EXAMPLES III-VII

Examples III-VII are summarized in the following ta-

EXAMPLE VIII

1.0 gram p-toluylenediamine sulfate and 1.0 gram 2-methyl-hydroxyethylamino-5-aminopyridine are dissolved in 94.0 grams water, 4.0 grams of 25% aqueous ammonia solution are added. Upon applying this solution as described in Example II, a light chestnut brown coloration of the hair will be achieved.

EXAMPLE IX

2.0 grams 2-hydroxyethylamino-5-aminopyridine-hydrochloride and 0.1 gram 2,6-diaminopyridine are dissolved in 93.9 grams water and 4.0 grams 25% aqueous ammonia are added thereto.

Upon applying this solution in the manner described in Example I, the hair will be colored in a very natural looking ash-blond color. In this case the 2,6-diaminopyridine serves as a modifier.

What is claimed as new and desired to be secured by Letters Patent is:

1. A composition of matter suitable for use in the oxidative dyeing of hair which comprises a liquid carrier material adapted for application to human hair and having distributed therethrough an alkalinizing agent selected from the group consisting of alkali hydroxides and ammonium hydroxide and an effective amount of a member selected from the group consisting of 2-methyl-hydroxyethyl-amino-5-aminopyridine, 2-cyclohexylamino-5-aminopyridine, 2-(gamma-methoxypropylamino)-5-aminopyridine, 2-(gamma-dimethylamino-propylamino)-5-aminopyridine, 2-phenylamino-5-aminopyridine and 2-hydroxyethylamino-5-aminopyridine-hydrochloride.

2. A composition of matter as defined in claim 1 and additionally including at least one other oxidation hair dye intermediate selected from the group consisting of p-phenylenediamine, p-toluylenediamine, m-phenylenediamine, m-toluylenediamine, p-aminophenol, p-amino-N-dimethylaniline, 4,4'-diamino-diphenylamine, m-diamino-

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anisole, m-diethylaminophenol, 2,3-diaminopyridine, 2,6-diaminopyridine, m-aminophenol, o-aminophenol, alpha-naphthol, 2,6-dioxypyridine, resorcinol, catechol, pyrogallol, hydroquinone, phloroglucinol and 2,7-dioxynaphthaline.

3. A method of dyeing hair comprising the step of applying to the hair a liquid carrier material adapted for application to human hair and having distributed there-through an alkalizing agent selected from the group consisting of alkali hydroxides and ammonium hydroxide, an effective amount of a member selected from the group consisting of 2-methyl-hydroxyethyl-amino-5-aminopyridine, 2-cyclo-hexylamino-5-aminopyridine, 2-(gamma-methoxy-propylamino)-5-aminopyridine, 2-(gamma-dimethylamino-propylamino)-5-aminopyridine, 2-phenylamino-5-aminopyridine and 2-hydroxyethylamino-5-aminopyridine-hydrochloride, and another oxidation hair dyeing intermediate

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selected from the group consisting of p-phenylenediamine, p-toluylenediamine, m-phenylenediamine, m-toluylenediamine, p-aminophenol, p-amino-N-dimethylaniline, 4,4'-diamino-diphenylamino, m-diaminoanisole, m-diethylaminophenol, 2,3-diaminopyridine, 2,6-diaminopyridine, m-aminophenol, o-aminophenol, alpha-naphthol, 2,6-dioxypyridine, resorcinol, catechol, pyrogallol, hydroquinone, phloroglucinol and 2,7-dioxynaphthaline.

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