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〈一般論文〉

p-Aminophenol 類と 1-Naphthol の空気酸化による染毛剤の発色過程の検討

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Color Development of Hair Dyes by Air Oxdation Using *p*-Aminophenols and 1-Naphthol

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Abstract

Although oxidation dyes are the most widely used commercial hair dyes, the oxidation mechanisms for product formation and color development of hair dyes have not been completely elucidated.

According to our previous studies, we investigated the oxidation products and the mechanism of color development of oxidation hair dyes under alkaline conditions by air, which is a mild oxidizing agent. The products acetylated for protection of hydroxyl groups in the indonaphthols against further oxdation were isolated by column chromatography and analyzed by $^{1}H/^{13}C$-NMR and high-resolution mass spectroscopy.

The reactions of substituted *p*-aminophenols as precursors (Pre) with an equimolar amount of 1-naphthol as a coupler (C) in aqueous solution of ethanol gave indonaphthol derivatives, which formed three types of oxidative coupling products (Pre : C＝2 : 1, 1 : 1, and 1 : 2) of both the precursor and the coupler. The reaction rate and the percentage of oxidation products were considered based on the substituent effect of the precursor.

Key words: hair dyes, air oxidation, *p*-aminophenols, 1-naphthol, NMR, MS, visible spectra.