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A Relation Between Photochromism and Structure in the Three Crystal Forms of a Salicylideneaniline Derivative. Y. Ohashi, K. Johmoto, H. Uekusa, Tokyo Inst. of Technology, Tokyo 152-8551, Japan.

Reversible color change by photoirradiation has been well known as photochromism which has been attracted as a variety of application. The crystals of salicylideneaniline derivatives, some of which show photochromism, have been extensively studied. We reported that the photochromism is caused by the structural change from enol to *trans*-keto form in the crystal, analyzing the structure at the unstable photo-colored state.¹⁾ Recently we found that one of the derivative, N-3,5-di-*tert*-butylsalicylideneaniline-3-carboxyaniline, was crystallized in three forms, α , β and γ -forms. When the crystals were irradiated with the mercury lamp, the α -form changed the color from colorless to red and the β -form did from light yellow to red, whereas the γ -form with orange color showed no change. The lifetime of the colored species for the α - and β -forms were estimated 17 and 780 min, respectively. Not only the structures of the three forms before the irradiation but also the structure of the colored α -form was successfully analyzed. The structures clearly explained the different photochromic properties among the three crystal forms.

1) J. Harada, H. Uekusa and Y. Ohashi, *J. Am. Chem. Soc.*, 121, 5809-5810 (1999)