

SYNTHESIS OF TWO ISOMERS OF HEXAMETHYLAURINS

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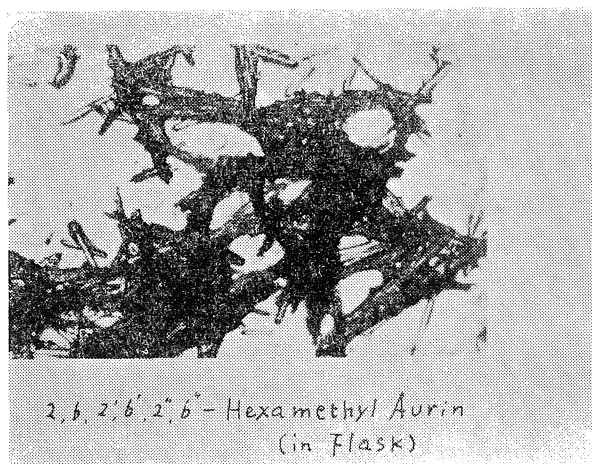
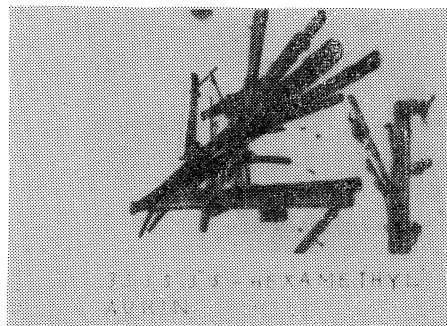
1. Introduction

A few methods of preparing aurin type pigments have been reported since many years before. But only three kinds of pigments were synthesized until recent times. Nowadays the authors established a simple method of preparation and it was applied to synthesize more than ten pigments successfully. Some of them were published and the others given at the meeting.²⁾ In this paper the authors principally considered the differences of uv and v spectra between the two isomers of hexamethylaurins.

2. Experiments

2.1 Preparation of pigments

2,6-Dimethylphenol and 3,5-Dimethylphenol were used as raw materials. Each 3 g of them was mixed with 9 ml of 50% trichloroacetic acid aq. solution and 10.5 ml of 33% sodium hydroxide, heated at 100°C for 1 hour and evaporated on a waterbath to finish the reaction. Then the mass was acidified with acetic acid, filtered and washed well with water. The raw pigments were dissolved in a mixed solution of water and ethylalcohol (1:2), developed through an active alumina chromatograph. The crystalline 2,6,2',6',2'',6''-Hexamethylaurin was yellow, but another 3,5,3',5',3'',5''-Hexamethylaurin was red.



Microscopic photos (60x)

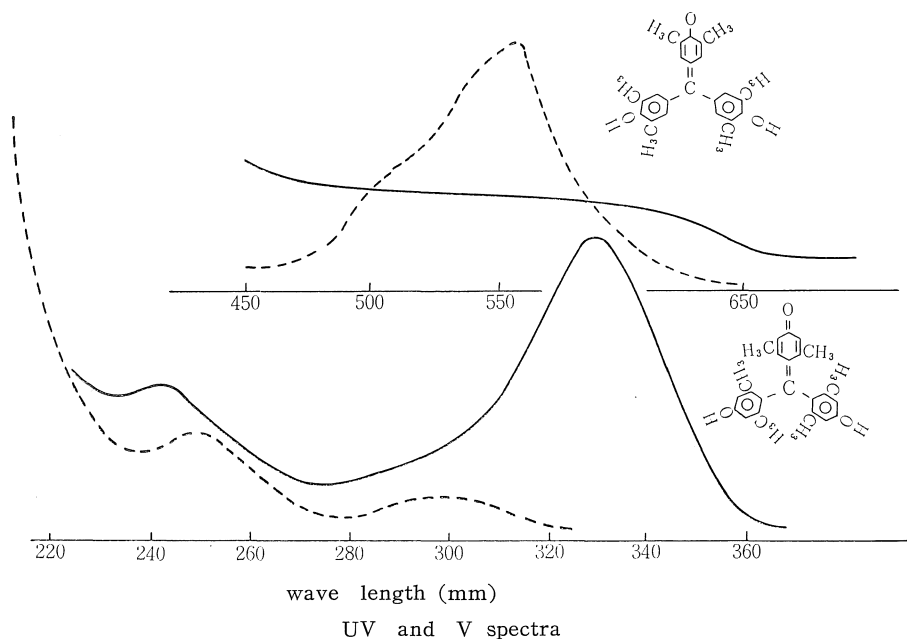
Left : 2,6,2',6',2'',6''-Hexamethylaurin

Right : 3,5,3',5',3'',5''-Hexamethylaurin

2.2 Elementary analysis

Compound	Molecular formula	Cal.	C (%) Found	Cal.	H (%) Found
2,6,2',6',2'',6''-Hexamethylaurin	C ₂₅ H ₂₆ O ₈ 2H ₂ O	73.17	73.13	7.31	7.24
3,5,3',5',3'',5''-Hexamethylaurin	C ₂₅ H ₂₆ O ₈ 2H ₂ O	73.17	73.90	7.31	7.52

2.3 Uv and v spectra



- : 2,6,2',6',2'',6''- Hexamethylaurin
 ... : 3,5,3',5',3'',5''- Hexamethylaurin

Three benzene rings of 2,6,2',6',2'',6''-Hexamethylaurin can not exist on the same plane owing to their steric hindrances. The molecular model shows that each benzene ring can still have its free angle of revolution 120°. Under this situation the molecule of 2,6,2',6',2'',6''-Hexamethylaurin loses the strong absorption at 550~600mm. and gets the other strong peak at 300~340mm. The authors considered the latter peak was caused by the restricted revolutions of three benzene rings.

3. Conclusion

Two isomers of hexamethylaurins were synthesized by the authors' method. They showed very characteristic features in their uv and v spectra. The authors considered the curious behaviours were principally caused by the steric hindrances of 2,6,2', 6',2'',6'' -Hexamethylaurin.

References

- 1) K.Kihara and others, *Kogyo Kagaku Zasshi*, 73, 110 (1970)
- 2) Fall meeting of Japanese Chemical Society and other related associations and academies in Hokkaido, Aug. 29, 1970.