

*Synthesis and Mesogenic Properties of the Polymeric  
[5,5,-Diquinolylmethane] dicarboxylate alkanes*

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**ABSTRACT.** New thermotropic liquid crystal polymer poly[5,5-Diquinolylmethane] dicarboxylate alkanes, were synthesized and their thermal and mesogenic properties were studied by differential scanning calorimetry, differential thermal analysis and by use of a hot stage polarizing microscope. These studies reveal that this polymers exhibit only a nematic mesophase.

**INTRODUCTION**

Polymers incorporating mesogenic group in the main chain, separated by flexible spacers are of considerable interest because their phase transition temperatures are considerably lower than those in which the mesogenic groups are bound directly to each other or through a rigid, non mesogenic unit<sup>(1)</sup>. Recently, several polymers of this kind have been prepared and studied<sup>(2-9)</sup>.

To our knowledge, there is only one report<sup>(10)</sup> which describes thermotropic liquid crystal polymers containing quinoline derivatives as mesogens. In recent publication, Kamal *et al.*<sup>(10)</sup> have synthesized the thermotropic liquid crystal polymer, poly [5,5-diquinolylmetane sebacate], but no detailed study concerning the relationship between the length of polymethylene spacer and the mesogenic properties of these polymers has been attempted.

In this paper we describe the synthesis and mesogenic properties of some thermotropic liquid crystal polymers which are composed of quinolines and aliphatic spacers with different lengths. The mesogenic behaviour of the synthesized polymers ( $P_n$ ) was examined by using differential scanning calorimetry and optical microscopy. Details of this work are presented in the following sections.