Dimesogenic Compounds with a Schiff Base Mesogenic Units and a Tetramethylene Flexible Spacer

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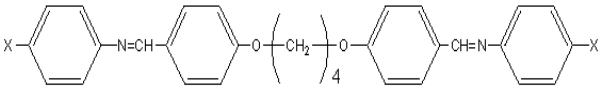
A homologous series of novel liquid crystal compounds having two identical terminal Schiff base mesogenic unit and a central tetramethylene spacer were prepared.
The molecular structures of the dimesogenic compounds are presented below



X= -F, -Cl, -Br, -I, -CN, $-CF_3$, $-OCH_3$
Their thermal and liquid crystal properties of the dimesogenic compounds were studied by differential scanning calorimetry and polarizing microscopy. The final products with X= -F, -Cl, -Br, -CN and $-OCH_3$ were enantiotropically nematic liquid crystalline. In contrast, the compounds with X= -I and $-CF_3$ were non-liquid crystalline. The nematic forming efficiency of the groups was in the order of -CN > $-OCH_3$ > -Br > -Cl > -F.