AIMS AND OBJECTIVES
The study of the effect of chemical constitution on mesogenic properties have revealed that the introduction of a lateral substituent decreases both crystal-mesomorphic and mesomorphic-isotropic transition temperatures. Keeping this in view five homologous series possessing bulky methoxy group as a lateral substituent are synthesized and their mesomorphic properties are studied. The effect of lateral methoxy group is evaluated by comparing the thermal stabilities of the present series with the related unsubstituted homologous series. It was expected that compounds with bulky lateral methoxy group would exhibit low melting mesophases.

The literature survey suggests that the mesogens with end phenolic group are rare. The rarity was attributed to the intermolecular hydrogen bonding which would raise the melting point of the substance so high that it would not exhibit mesomorphism. However recently some mesogenic compounds with end phenolic groups are reported, but the systematic study could not be carried out by synthesizing a homologous series. In the present study first extensive mesogenic homologous series is synthesized having end phenolic group, the probable hydrogen bonding and the thermal stabilities of this series are discussed. Moreover a mesogenic homologous series with a lateral phenolic group is also synthesized and its mesogenic behaviour is discussed.

Recently mesogenic homologous series with cyano and nitro end groups have created an interest as they exhibit positive
dielectric anisotropy which gives better display devices. In the present study a mesogenic homologous series with nitro end group is synthesized and its mesogenic properties are studied.

Heterocyclic mesogenic homologous series having oxygen as heteroatom are few. Hence it was decided to synthesize and study a mesogenic oxo-heterocyclic homologous series and its benzene analogue which will help to evaluate the effect of heterocyclic ring on mesomorphism.

So far not a single mesogenic homologous series is reported with an amide central linkage. It is reported that this group will be deterrent to the mesogenic properties. Recent reports of polyamides exhibiting liquid crystalline properties, used for industrial fibres, prompted us to synthesize a mesogenic homologous series having an amide central linkage. The mesogenic properties of the series are studied and the effect of an amide linkage on mesogenic properties is evaluated.