CHAPTER - IV

SUMMARY

In the present investigation the following units of work has been accomplished.

1. Various thiols have been prepared starting from the corresponding alkyl bromides and arenesulphonyl chlorides.
2. Some (*E*)-bis-sulfides have been prepared taking benzoin as starting material. Benzion on condensation with various thiols in presence of dry hydrogen chloride and zinc chloride yielded (*E*)-1,2-bis(alkylthio and arylthio)stilbenes.
3. (*E*)-1,2-bis sulphones have been prepared by the oxidation of the corresponding (*E*)-1,2-bis sulphides.
4. The infrared spectra of all the (*E*)-bis-sulphides and (*E*)-bis-sulphones have been recorded. C = C stretching frequency bands have been observed for both (*E*)-bis -sulphides and (*E*)-bis -sulphones between 1648 - 1686 cm^{-1} and 1651 - 1682 cm^{-1} respectively, confirming the *trans* configuration of these compounds. The characteristic absorption bands for sulphone group appeared in all bis-sulphones in the region of 1150 cm^{-1} and 1300 cm^{-1}. The bis-sulphides and bis-sulphones exhibited a medium band around 640 cm^{-1} and 1080 cm^{-1} region which are charecteristic of S-alkyl and S-aryl groups present in them.
5. Mass spectral studies of (*E*)-1,2-bis-sulphides and (*E*)-1,2-bis-sulphones were carried out. Notable features observed in this studies are that bis-sulphides undergo McLafferty-type rearrangement and Smiles-type rearrangement. Major fragmentation patterns observed in (*E*)-1,2-bis-sulphones include lose of SO_2, McLafferty-type rearrangement and sulphone-sulphinate rearrangement.

6. The new compounds prepared during the present investigation were

(*E*)-1,2-Bis(n-propylthio)stilbene, m.p. 56 - 57°C

(*E*)-1,2-Bis(n-propylsulphonyl)stilbene, m.p. 239 - 240°C

(*E*)-1,2-Bis(isopropylthio)stilbene, m.p. 165 - 166°C

(*E*)-1,2-Bis(isopropylsulphonyl)stilbene, m.p. 281 - 282°C

(*E*)-1,2-Bis(benzylthio)stilbene, m.p. 180 - 181°C

(*E*)-1,2-Bis(benzylsulphonyl)stilbene, m.p. 267 - 268°C

(*E*)-1,2-Bis(*p*-tolylthio)stilbene, m.p. 168 - 169°C

(*E*)-1,2-Bis(*p*-tolylsulphonyl)stilbene, m.p. 288 - 289°C

(*E*)-1,2-Bis(*p*-chlorophenylthio)stilbene, m.p. 158 - 160°C

(*E*)-1,2-Bis(*p*-chlorophenylsulphonyl)stilbene, m.p. 279 - 280°C

(*E*)-1,2-Bis(α-naphthylthio)stilbene, m.p. 114 - 115°C

(*E*)-1,2-Bis(α-naphthylsulphonyl)stilbene, m.p. 318 - 319°C