CONCLUSION

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Thermoluminescence and Luminescence spectra for the monomer, 5,7 dihydroxy-4-methyl coumarin (M) and its copolyesters (P1 to P5) have been recorded. On the basis of discussion provided for the spectra the following conclusions have been drawn.

1. From the structural formulae of polymers it has been shown that electron-ion recombination can very well be used to explain the thermoluminescence in polymers.

   It can therefore, be concluded that electron-ion recombination model is valid for the explanation of thermoluminescence in polymers.

2. It is also observed that intensity increases with the increase in dose; which suggest that the polymers are not degraded. Therefore, specimens may be used to measure the radiation dose upto 345 x 10^2 Rad. ofcourse for this the careful calibration is required.

3) It is further concluded that the traps responsible for the thermolumnescence may be cavity traps, since the possibility of the other types of traps are shown to be ruled out.

4. From the discussion on the TL of thermally treated specimens, it is clear that the trap energy also charges. This change in the energy of traps suggest that after thermal treatment the spatial configuration of polymers changes as the nature of cavity traps change.

5. After mechanical treatment, also energy of the trap is observed to be changing. From which it can be concluded that in a similar way to the thermal treatment, spatial configuration of polymer changes after mechanical treatment also.

6. The monomer M show the fluorescence peak at 430 nm and 520 nm. After polymerization, the 430 nm peak shifts to 410 nm while no shift in the 520 nm peak is observed. From the discussion, it can be concluded that 430 nm peak can be attributed to the benzene ring, while 520 nm peak can be due to pyrole ring present in the coumarin.