In this paper, we analyzed the light scattering spectra of benzene. The analyses of the spectra give a precise depolarization factor $\rho$ value. We observe an abnormal behavior of $\rho$ as temperature function on the range temperature $290 \leq T \leq 333 \text{K}$. We observe also that the value of $\rho$ exceed 0.75. We note that the value of $\rho$ for some liquids which have non-cylindrical symmetric structure such as Nitrotolune, a-chloronaphtalene $^a$ are respectively 0.82 and 0.78 at ambient temperature. These results are abnormal since the maximum value of $\rho$ ($\rho = 0.75$) is deduced from the cylindrical symmetric structure hypothesis. The discrepancy between the theoretical and the experiment results occurred for benzene can be explained by one of the two considerations. The first one is that the theoretical expression of $\rho$ is no longer exact for the benzene. The second is that the benzene structure change. Then, the depolarized factor is not linked just to the molecular structure but it can be related to the other factors. Not that we have observed an abnormal behavior of sound velocity $^b$ and the reorientation motion $^c$ in benzene liquid on the range temperature centered at $309 \text{K}$ and $321 \text{K}$. The authors have explained this new fact as an established of long length correlation in liquid phase. This correlation is strong enough to perturb the equilibrium thermodynamic system. Thus, we can also suggest that this correlation induce a change in atom disposition on the liquid. Then, the factor $\rho$ became more important.

