Resonance Raman intensities show that methoxy substitution induces considerable allowed character to the $L_\alpha$ transition of benzene. In symmetric 1,3,5-trisubstituted benzene derivatives the induced allowed character should cancel by symmetry. However, in 1,3,5-trimethoxybenzene the resonance Raman spectra show a strong fundamental transition of $P_8$, the clear signature of an allowed transition. It is shown that this is due the presence of a $C_3$ conformer of 1,3,5-trimethoxybenzene in which one of the three methoxy groups is rotated relative to the other two. This conclusion is supported by ab initio calculations of conformational energies, induced transition moment and the splitting of the $P_8$ vibrational band. These results will be compared with those obtained from jet spectroscopy.