

# Isomer Dependent Fluorescence Quenching in Hydrogen Bonded Complexes of Phenylacetylenes

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The hydrogen bonded binary complexes of phenylacetylene with methylamine show different fluorescent behavior depending on the structure of the complexes. This signifies that the electronic properties of the complexes vary drastically with change in the geometry of the complexes. Complexes having linear C-H $\cdots$ N hydrogen bonding were found to be non-fluorescent in nature. It is widely known that quenching of fluorescence is facilitated by amines through electron transfer mechanism. However, in the present case electron transfer mechanism is probably not the quenching mechanism. In order to understand the nature of the fluorescence quenching mechanism, investigations on fluorine substituted phenylacetylene were also carried out. In the case of fluorophenylacetylenes, it was found that the fluorescent behavior of the methylamine complexes is dependent on the position of the fluorine substitution. Based on these results, we propose a curve crossing mechanism.