AMINO ALKYL AROMATIC COMPOUNDS AS FLUORESCENT pH INDICATORS

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In spite of all their advantages over adsorption indicators, fluorescent pH indicators(1) suffer from the disadvantage that the pH range cannot be predicted from simple ground state measurements(3). We identify this problem as originating from the fact that almost all common fluorescent indicators have their protonation site directly attached to the chromophore. With a view to avoiding this problem, we have examined the pH dependent fluorescence behaviour of molecules which contain extrachromophoric protonation sites and which are capable of exciplex interaction. Amino, alkyl aromatic compounds(2) are examples of this class which fluoresce intensely in acid media but not in base. Known photochemical processes can therefore be exploited to develop this new type of fluorescent pH indicators. Practically useful examples from the anthracene and quinoline series will be described.

References

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