The specificity of the $[NHN]^+$ hydrogen bonds in protonated naphthalene proton sponges.

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Streszczenie

A short review of data related to the structure and infra-red and ^1H NMR spectra of protonated naphthalene proton sponges (DMAN-s) is presented. Protonated DMAN-s are characterized by a very low frequency of $\nu(NHN)^+$ stretching vibrations, ca. 500 cm^{-1}, with an unusual $^1H/^2H$ isotope effect opposite to that commonly observed, reaching values above 2. The 2,7 derivatives showing the buttressing effect are analyzed. The shortest bridge was found for the 2,7-di-$Si(CH_3)_3$ derivative, which is close to the shortest bridge in protonated 1,6-diazabicyclo[4.4.4]tetradecane, for which a single minimum potential for proton motion was reported. However, in protonated DAMN-s a double minimum with a very low barrier (LBHB) is always present.

Słowa kluczowe

proton sponges, Isotope effects, Anharmonicity, Buttressing effect

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