

Tröger's base twisted amides: high amide bond twist and N-/O-protonation aptitude.

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Streszczenie

Tröger's base twisted amides have emerged as attractive scaffolds to readily achieve substantial nonplanarity of the amide bond in a bicyclic lactam framework. Herein, we report structures and proton affinities of a diverse set of Tröger's base twisted amides and compare them with related nonplanar bridged lactams. The data demonstrate that Tröger's base twisted amides embedded in a [3.3.1] scaffold are among the most twisted bridged lactams prepared to date. Intriguingly, while these amides also favor N-protonation, our data show that the best model for probing N-protonation aptitude in the series of nonplanar amides are less twisted benzofused 1-azabicyclo[3.3.1]nonan-2-one derivatives. This work (1) provides the understanding for future design of nonplanar bridged lactams to directly access N-protonated amide bonds, (2) validates the use of the additive Winkler-Dunitz distortion parameter, and (3) emphasizes the importance of peripheral modification to modulate properties of nonplanar amides.

Adres publiczny

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<https://www.acs.org/content/acs/en.html>