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## Ring strain energy and its influence on dissociation energy of C-H-bond in cycloalkanes, cycloalkenes, cycloaromatic hydrocarbons and O-H-bond in cyclocarboxylic acids

© Vladimir E. Tumanov,<sup>+</sup> and Evgeny T. Denisov\*

Institute of Problems of Chemical Physics RAS. Chernogolovka, 142432. Moscow Region. Russia. Fax: +7 (496) 522-35-07. E-mail: tve@icp.ac.ru

\*Supervising author; <sup>+</sup>Corresponding author

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## Abstract

Empirical research of influence of ring stain energy  $(E_{rsc})$  on dissociation energy of C-H-bond  $(D_{C-H})$  in cycloalkanes, cycloalkenes and cycloaromatic hydrocarbons (indane, tetraline) is conducted. It is shown that for all cyclic compounds, except cyclopropane, the simple relation is carried out:  $D_{C-H} = D_{C-H}(\Delta E_{rsc} = 0) + D_{C-H}(\Delta E_{rsc} = 0)$  $\Delta E_{rsc}$ , где  $\Delta E_{rsc}$  represents a difference of energies of ring strain energy of the formed radical and an initial molecule. Values  $D_{C-H}(\Delta E_{rsc} = 0)$  are close to  $D_{C-H}$  of linear hydrocarbons (paraffins, olefins). For cyclocarboxylic acids linear correlation between dissociation energy of O-H-bond and its electronegativity is established.