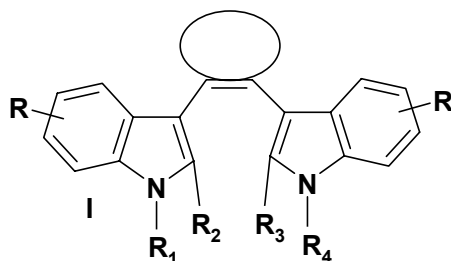


## Synthesis of New Bis-indolyethene Analogues

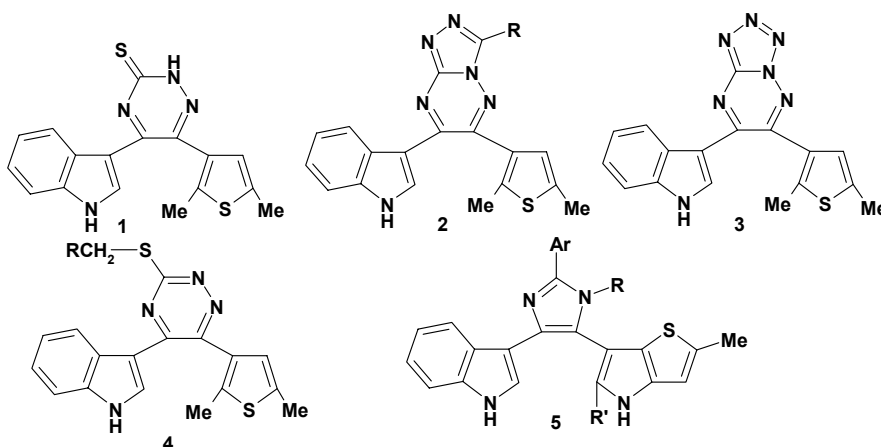
Igor P. Sedishev, Vladimir N. Yarovenko, Igor V. Zavarzin,  
Lyudmila G. Vorontsova, Zoya A. Starikova, Mikhail M. Krayushkin.

*Laboratory of Heterocyclic Compounds,  
N. D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences,  
47 Leninsky pr., 119991 Moscow  
Fax +7 (095) 135 5328  
E-mail: [yarov@ioc.ac.ru](mailto:yarov@ioc.ac.ru)*

Derivatives of bis-indolyl ethene (I) are known to have a wide range of biological activities.



We developed procedures for the preparation of analogues of structure I bearing nitrogen-containing bridges and various combinations of the indole, thiophene, and thienopyrrole fragments (1-5). Compounds 1, 4 (R=Ph), and 5 (Ar= 4-ClC<sub>6</sub>H<sub>4</sub>, R=H) were studied by X-ray diffraction. The ethene bond in the bridge was found to be substantially delocalized. Both intermolecular and intramolecular hydrogen bonds between the nitrogen atoms of the bridge and the indole fragment exist in the crystal structures. The dihedral angles between the fragments are up to 60°.



R = H, Alk, Ar  
R' = CO<sub>2</sub>Me