

International conference "Organometallic and Coordination Chemistry: Achievements and Challenges."
Conference-school for young researchers
"Challenges and achievements of modern organometallic and coordination chemistry"
September 18-23, 2015, N. Novgorod, Russia

**ORGANOMETALLIC AND COORDINATION CHEMISTRY:
ACHIEVEMENTS AND CHALLENGES**

(VI RAZUVAEV LECTURES)

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**CONFERENCE-SCHOOL FOR YOUNG RESEARCHERS
"CHALLENGES AND ACHIEVEMENTS OF MODERN
ORGANOMETALLIC AND COORDINATION CHEMISTRY"**

September 18-23, 2015

Volga river

Nizhny Novgorod - Cheboksary - Kazan - Samara - Nizhny Novgorod

ORGANIZERS

Federal Agency for Scientific Organizations

**Department of Chemistry and Material Sciences
of Russian Academy of Sciences**

**G.A. Razuvaev Institute of Organometallic Chemistry
of Russian Academy of Sciences**

Russian Foundation for Basic Research

Lobachevsky State University of Nizhny Novgorod

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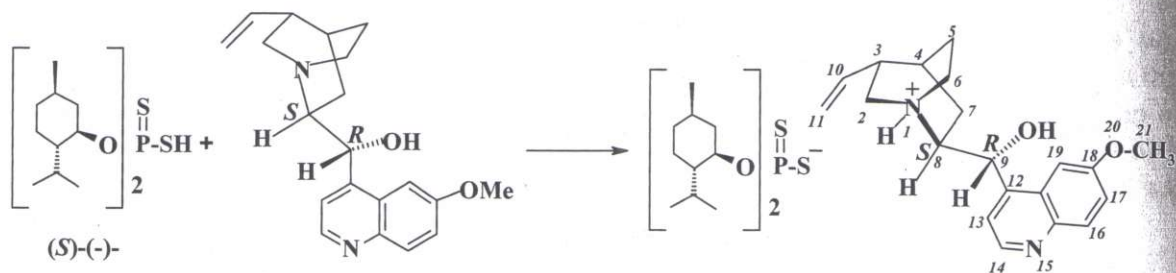
**The conference includes as a separate meeting
"3rd Russian Science Foundation Symposium on Organometallic
Chemistry" (project 14-43-00017) incorporating elements of a conference-
school for young researchers**

CHIRAL AMMONIUM SALTS OF DITHIOPHOSPHORIC ACIDS ON THE BASIS OF QUININE

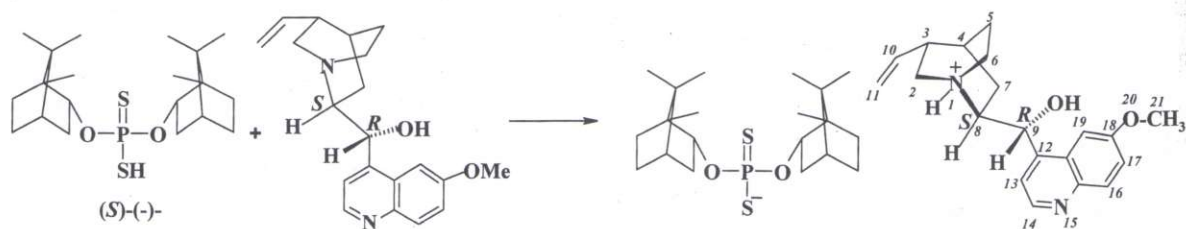
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The optically active cinchona alkaloids such as quinine may be used as source for obtaining new fungicidal and bactericidal compounds. Quinine and its catalyst components have been successfully employed in asymmetric synthesis. They have been found to be chiral solvating agents in the NMR determination of the enantiomeric composition of organic compounds. We have used optically active monoterpenols in the reactions with tetraphosphorus decasulfide to obtain chiral dithiophosphoric acids. The dithiophosphoric acids prepared on the basis of (*S*)-(-)-menthol and (*R*)-(+)-menthol were involved in the reactions with quinine at 60°C for 4 h with the formation of optically active ammonium salts of dithiophosphoric acids (^{31}P NMR δ_{P} 105-108 ppm).



Tetraphosphorus decasulfide has brought about to react with (*1S*)-endo-(-)-borneol in benzene at 50°C for 2 h with the formation of chiral dithiophosphoric acid transformed into the corresponding ammonium salt (^{31}P NMR δ_{P} 112.5 ppm) by the treatment with quinine at 60°C for 4 h.



Dithiophosphoric acid prepared on the basis of (*1R*)-endo-(+)-fenchyl alcohol react with quinine to form corresponding chiral salt (^{31}P NMR δ_{P} 111.5 ppm).

Ammonium dithiophosphates on the basis of quinine possess antimicrobial activity in relation to *Staphylococcus aureus*, *Bacillus cereus* and *Candida*.

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