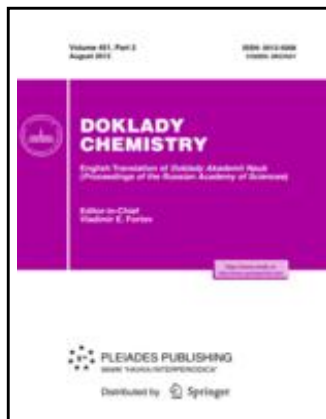


Introduction

-) Proceedings of the USSR Academy of Sciences (Doklady Akademii Nauk SSSR) was a soviet sciencejournal published by the academy of sciences of the USSR.

-) The journal covered academic research papers in biology, mathematics, physics, chemistry and geology.

-) It was published from 1933 to 1992 and is continued nowadays by Doklady akademii nauk by the Russian Academy of Sciences (RAN) (Impact Factor: 0.609)

**Translations**

-) In 1956 the American Institute of Physics began publishing translating "Soviet Physics Doklady", followed by most other sections including chemistry.

-) Nevertheless it is often problematic to find the matching English translation journal for articles published in Doklady due to transliteration errors and incorrect indexing of translated articles.

-) One approach to overcome this issue is to search in SciFinder for the original publication, yielding the subject section of Doklady by which one knows in which translation journal the article can be found. The print version of the translated journal provides a table of contents with the page numbers of the russian original and the translated english version.

Content of this seminar

-) Providing a selected overview of soviet research published and translated in "Doklady Chemistry".

-) Setting the focus on selected publications in the field of organic chemistry

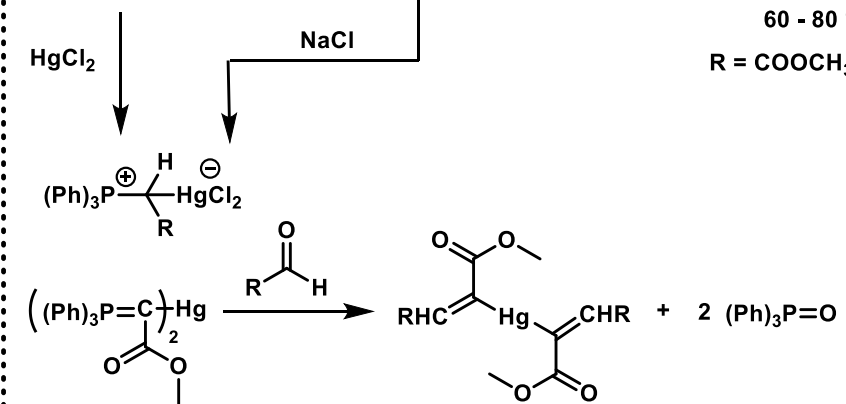
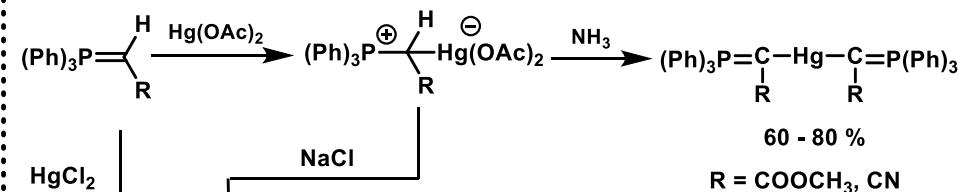
-) Covering translations ranging from the 1966 to 1990.

-) This seminar will not cover publications from the "Bulletin of the Russian academy of Sciences" which is an english translation of "Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya"

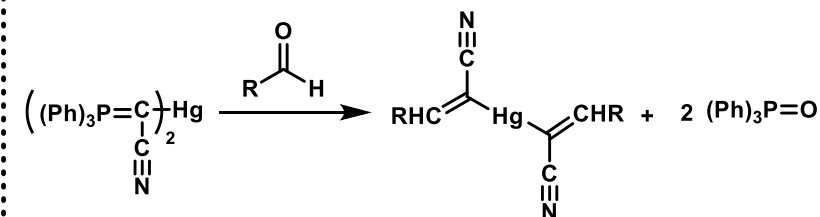
Further reading:
Electrochemistry in a divided world,
Fritz Scholz, Springer Press, 2015

Synthesis of Mercurated Crotonic and Cinnamic Acids by Means of Mercury-containing Wittig reagents

Nesmeyanov et al., Doklady Akademii Nauk SSSR, Vol. 195(1), pp. 98-100, 1970

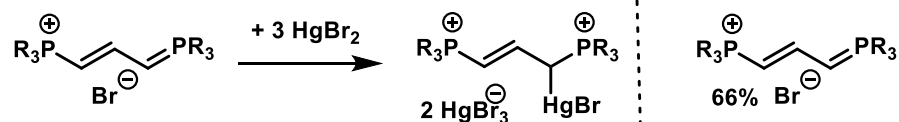
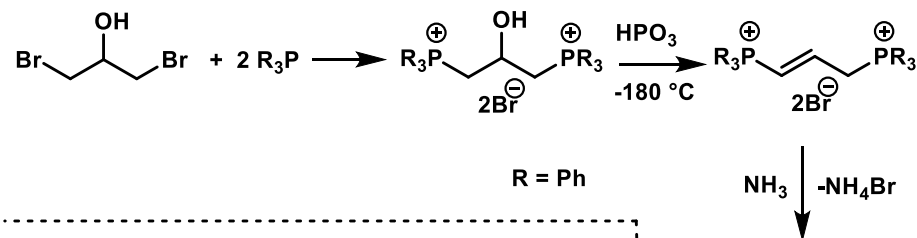


R = *p*-C₆H₄NO₂ (1 h, 70%), *m*-C₆H₄NO₂ (1 d, 71%), *p*-BrC₆H₄ (4 d, 60%), C₆H₅ (3 d, 43%) *p*-MeOC₆H₄ (5 d, 45%)

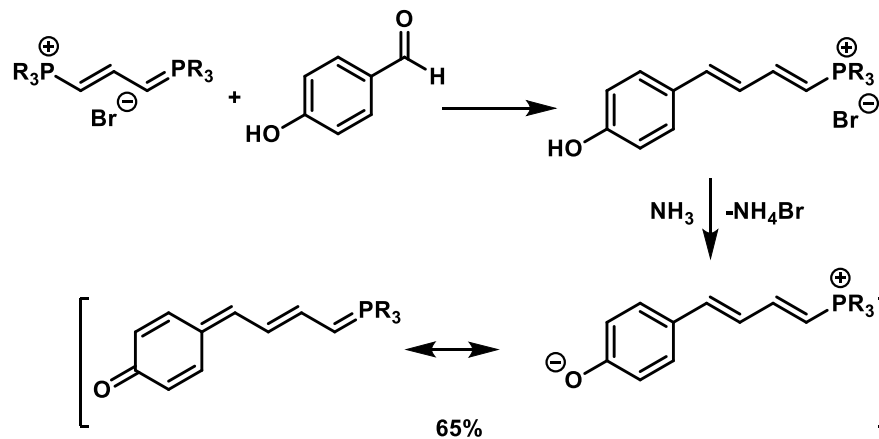


R = *p*-C₆H₄NO₂ (1 d, 63%), CCl₃ (10 min, 48%)

**Synthesis and Properties of New Phosphorylide (Phosphinemethylene)
with Phosphorane-Phosponium Type Conjugation**
Nesmeyanov et al., Doklady Akademii Nauk SSSR, Vol. 171(1), pp. 111-114, 1966

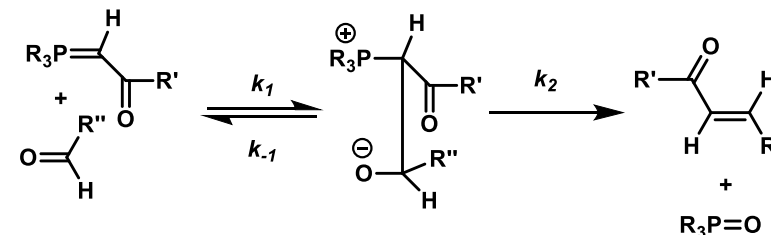


-) formation of mercurated adduct
whose reactivity is not further explored
(see also: J. Organomet. Chem., 4, 202, 1965)

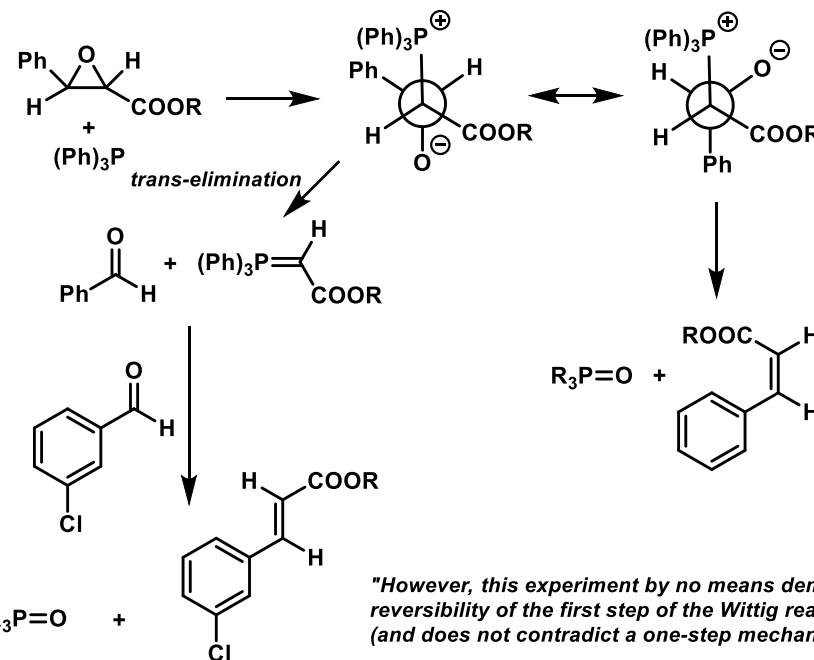


-) thermochromic behavior
-) bathochromic behavior
-) further reactivity unexplored

New representations of the mechanism of the Wittig reaction
Nesmeyanov et al., Doklady Akademii Nauk SSSR, Vol. 210(5), pp. 1102-1105, 1973

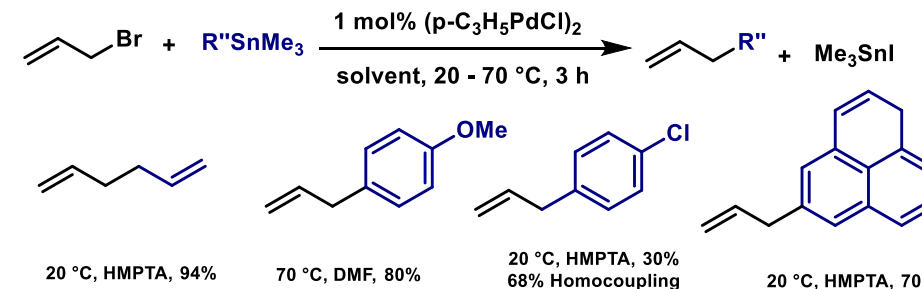
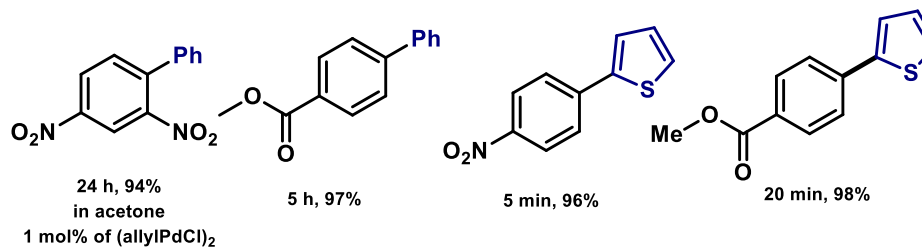
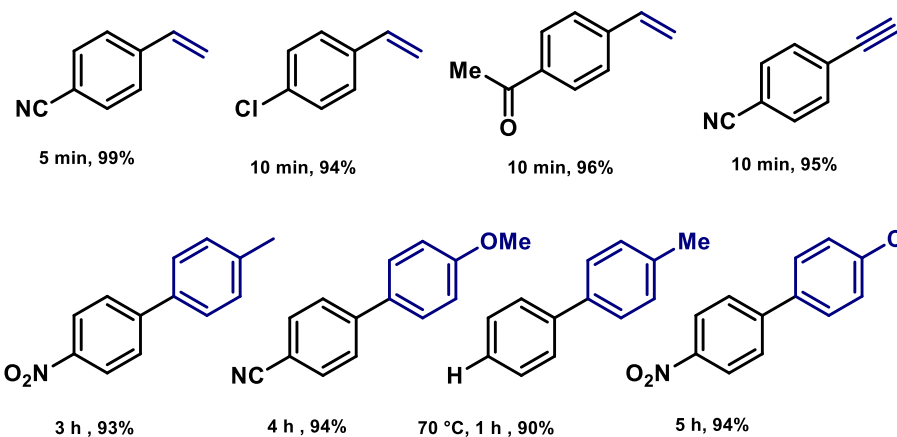
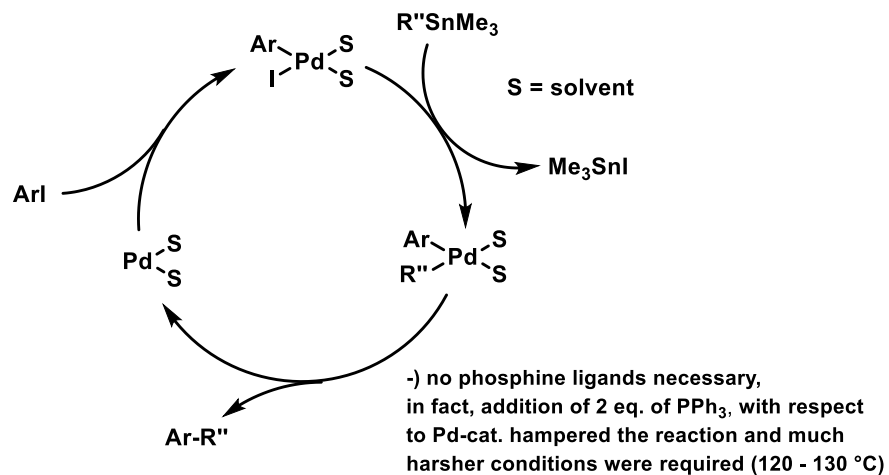
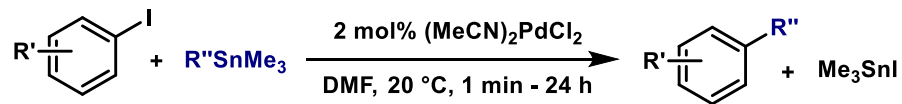


-) Mechanism proposed and widely accepted
(Speziale et al. J. Am. Chem. Soc., 85(23), 3878 (1963))

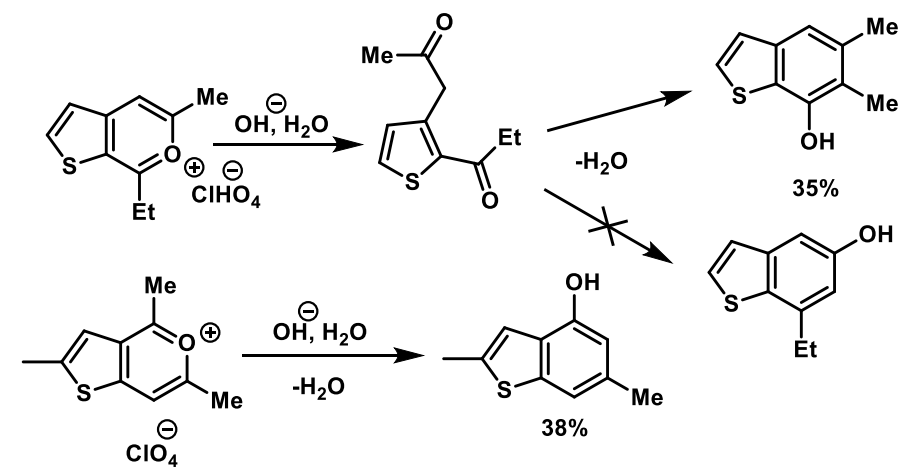


"However, this experiment by no means demonstrates
reversibility of the first step of the Wittig reaction
(and does not contradict a one-step mechanism)."

Aryl- and Allyldemattallation of $R''SnMe_3$ in the Presence of Palladium Complexes
Bumagin et al., Doklady Akademii Nauk SSSR, Vol. 274(5), pp. 1103-1105, 1984



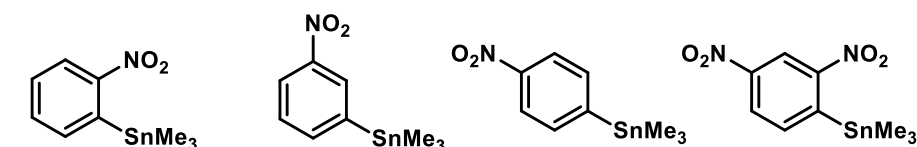
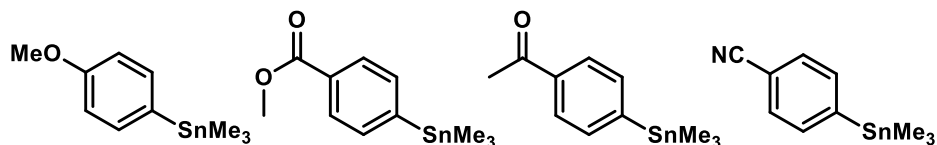
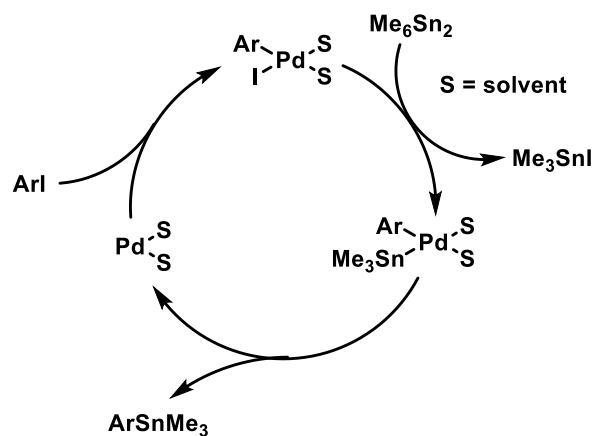
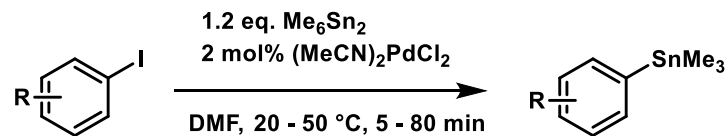
Conversions of Thienopyrylium Salts in Alkaline Medium - A New Way to Synthesize The Thienonaphthene System
Dulenko et al., Doklady Akademii Nauk SSSR, Vol. 195(1), pp. 98-100, 1970



For preparation of thieno-pyrylium salts see:
Dorofeenko et al. Dokl. Akad. Nauk SSSR, 166, 359, 1966

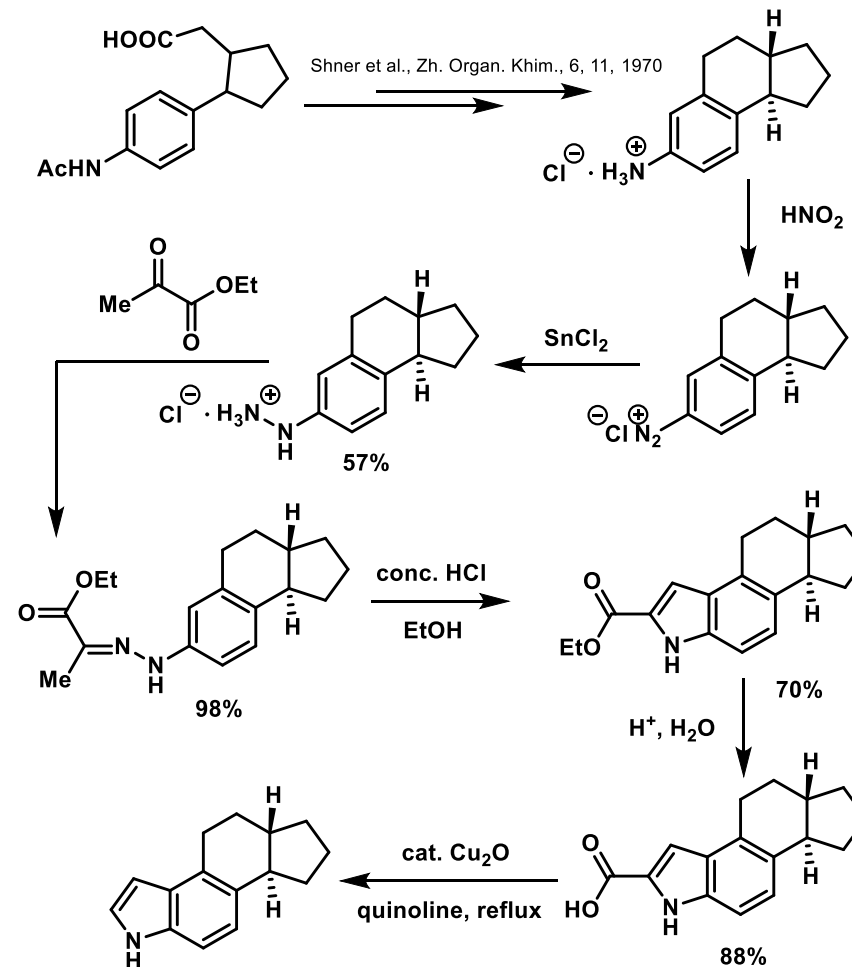
Synthesis of Aryltrimethylstannanes by the Reaction of $\text{Me}_3\text{SnSnMe}_3$ with Aryliodides, Catalyzed by "Ligand-Free" Palladium

Bumagin et al., Doklady Akademii Nauk SSSR, Vol. 274(5), pp. 1103-1105, 1984



Total synthesis of the first representative of A, B-Indolosteroids

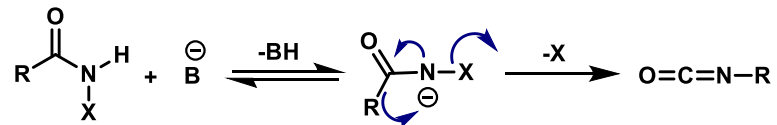
Sladkov et al., Doklady Akademii Nauk SSSR, Vol. 298(3), pp. 605-607, 1971



crystallized from a mixture of decarboxylation isomers

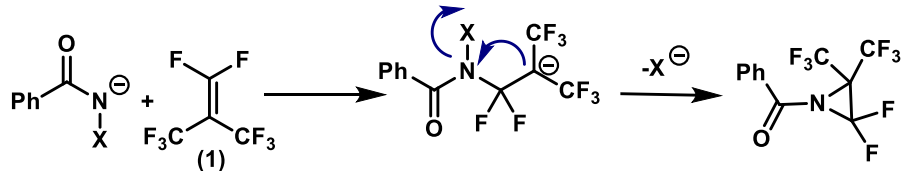
A New Reaction of Electrophilic C=C Bonds. Fixation of the Amide Anion, an Intermediate Formed in the Hofmann and Lossen Reactions

Zeifman et al., Doklady Akademii Nauk SSSR, Vol. 195(5), pp. 93-95, 1970



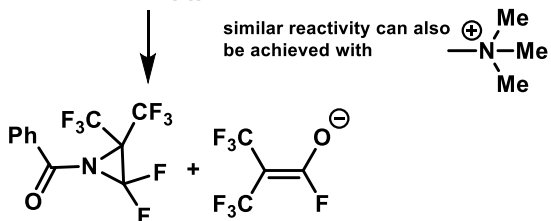
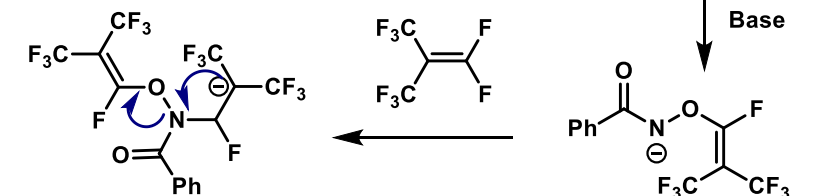
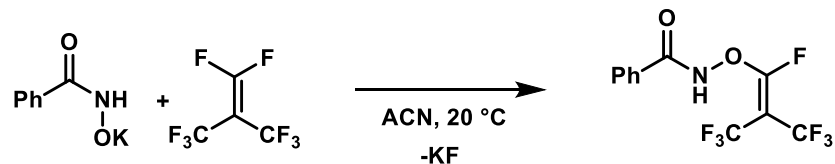
X = Hal, OCOR'

Hoffman-Lossen reaction



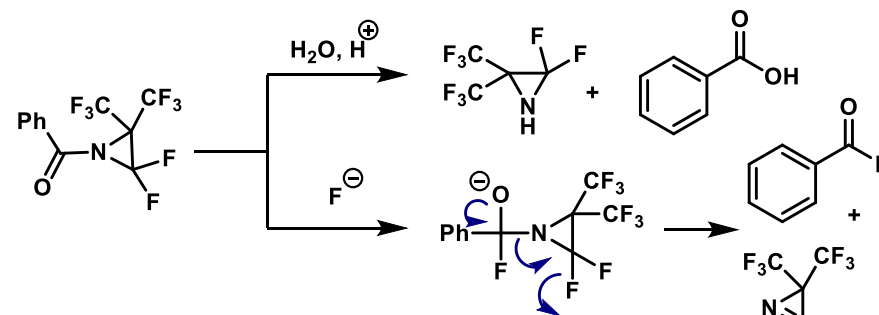
X = Cl, OCOCH(CF₃)

66%



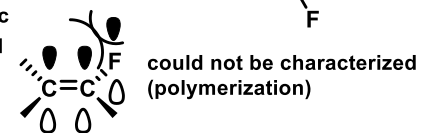
62%

(1) Perfluoroisobutene (nowadays a schedule 2 substance on the chemical weapons convention and considered to be ten times more toxic than phosgene)



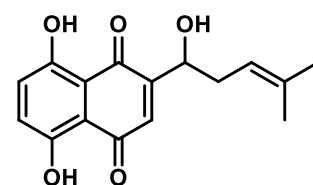
-) lone pair repulsion

-) unfavourable in Csp²-F bonds (Bent's rule: Atomic s-character concentrates in orbitals directed toward electropositive substituents)



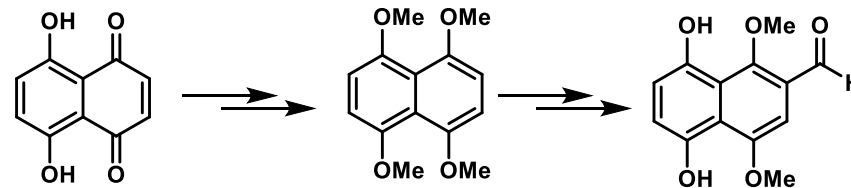
Total Synthesis of Shikalkin

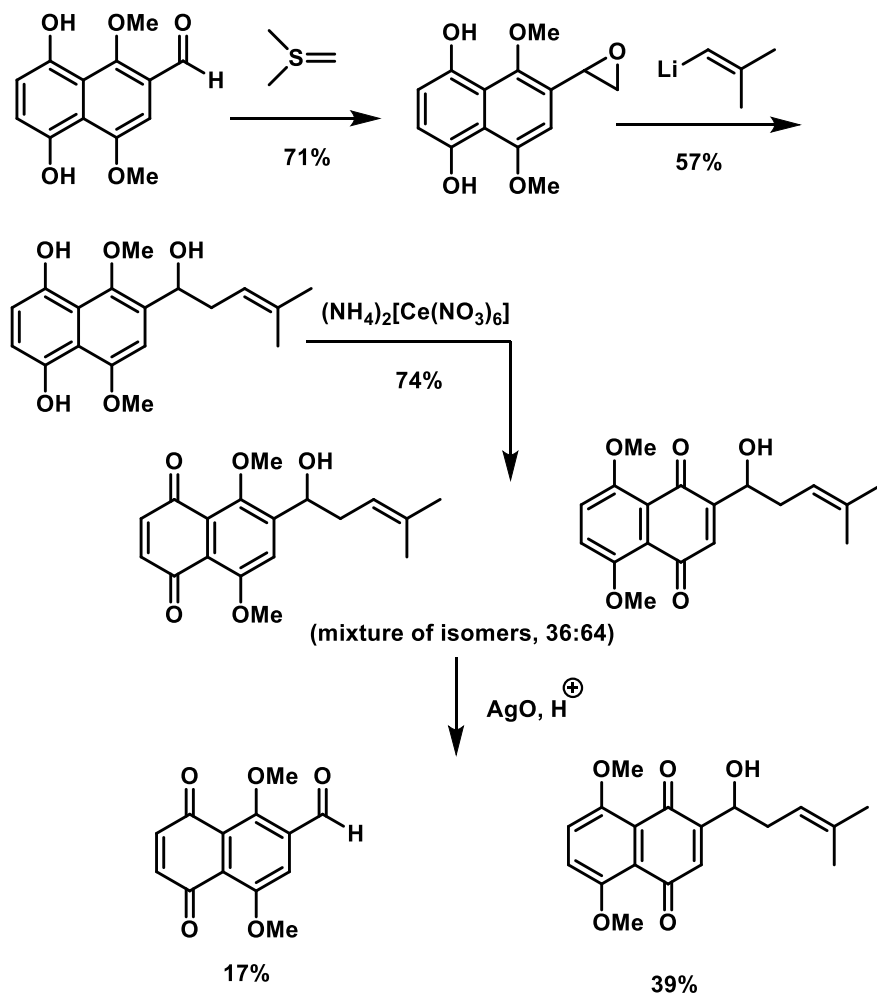
Moiseenkov et al., Doklady Akademii Nauk SSSR, Vol. 295(3), pp. 614-617, 1987



Shikalkin

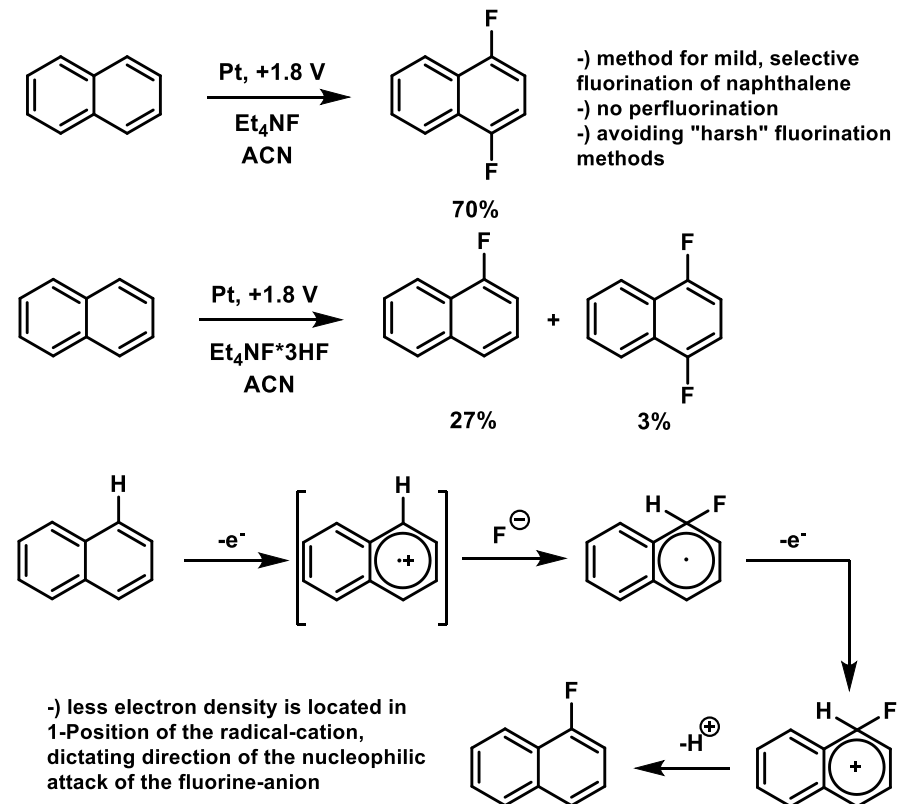
-) high antimicrobial activity
-) antitumor activity
-) clear anti-inflammatory effects
-) rapid healing effects





Further reading: Angew. Chem. Int. Ed. 1999, 38, 270 - 300

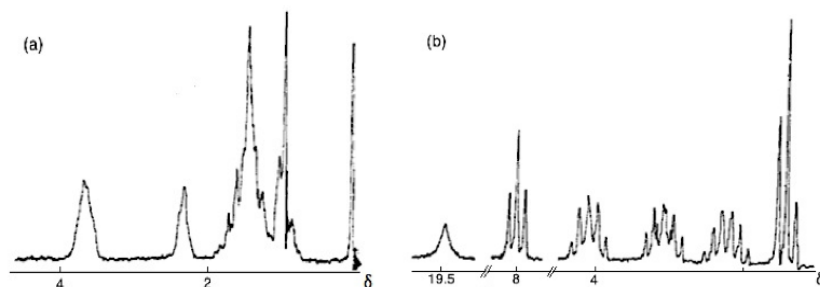
*A New Method of Preparation of Aromatic Fluorine-Containing Compounds
(Anodic Substitution of Fluorine for Hydrogen)*
Rozhkov et al., Doklady Akademii Nauk SSSR, Vol. 193(6), pp. 1322-1325, 1970



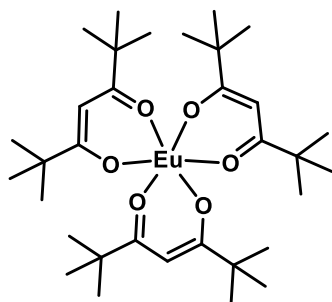
Further reading: Russian Chemical Reviews, 45 (7), 1976

Use of Lanthanide β -Diketonates to Increase the Regioselectivity of Organic Reactions
Komarov et al., Doklady Akademii Nauk SSSR, Vol. 313(6), pp. 1465-1467, 1970

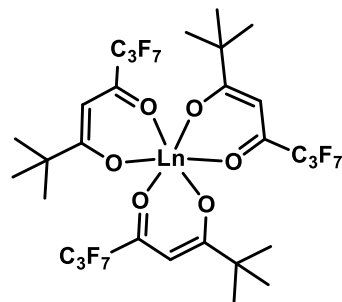
-) coordinatively unsaturated tris β -Diketonates of lanthanides can form labile adducts with a big variety of organic compounds which contain electron-donating moieties.
-) This effect is often exploited in NMR-spectroscopy, when paramagnetic lanthanides are added to the NMR sample in order to increase the resolution.



a) Shows the $^1\text{H-NMR}$ spectrum of pentane-1-ol without $\text{Eu}(\text{tmhd})_3$.
b) Shows the $^1\text{H-NMR}$ spectrum of pentane-1-ol with $\text{Eu}(\text{tmhd})_3$. [1]



(c) $\text{Eu}(\text{tmhd})_3$

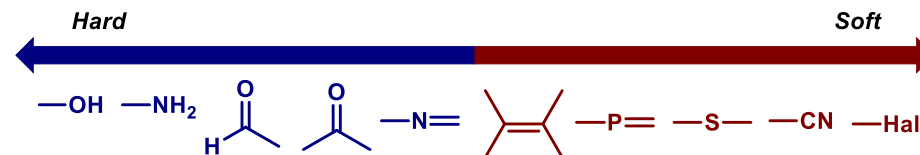


(d) $\text{Ln}(\text{fod})_3$

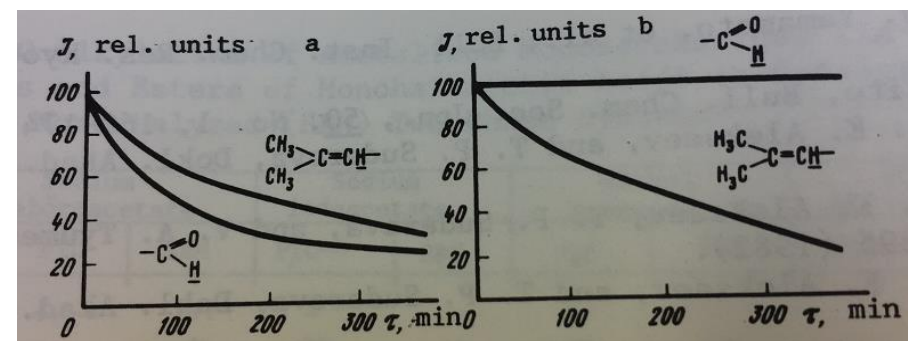
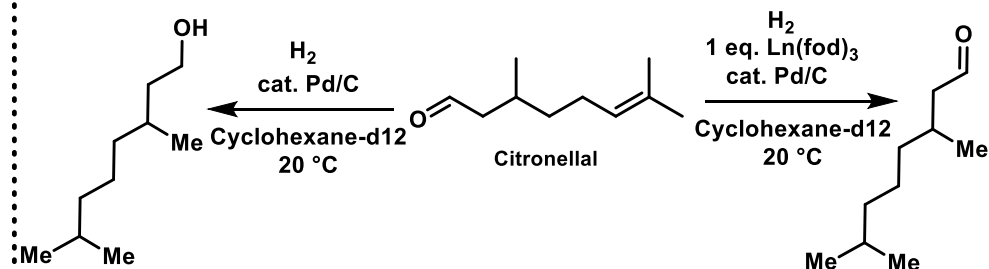
- c) Tris(2,2,6,6-tetramethylheptan-3,5-dionato-O,O')europium
- d) Tris(7,7,-dimethyl-1,1,2,2,2,3,3-heptafluoroocta-7,7-dimethyl-4,6-dionato)lanthanide

[1] Chem Reviews, 1973, 73, 553

-) *This work's hypothesis:* According to the Pearson concept, $\text{Ln}(\text{fod})_3$ prefers hard Lewis bases adduct partners over soft Lewis bases or other Lewis acids.....

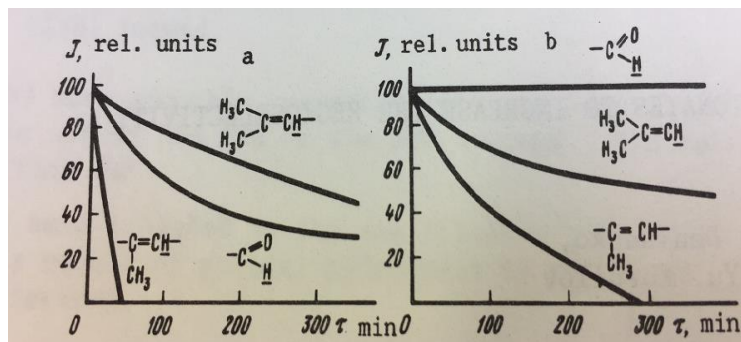
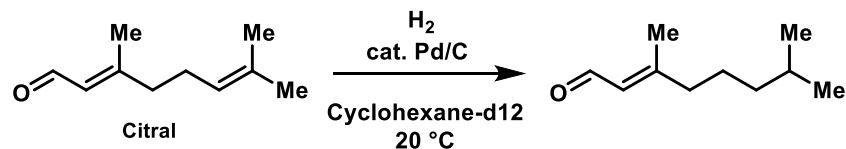


"thereby it can be assumed that such hard groups can be protected by means of $\text{Ln}(\text{fod})_3$ in the presence of soft groups".



Dependence of the relative NMR-signal intensities of the aldehyde moiety and the olefinic moiety of the time (min). Left: without the addition of $\text{Ln}(\text{fod})_3$. Right: with the addition of an equimolar amount of $\text{Ln}(\text{fod})_3$.

Is it also possible to tolerate an α,β -unsaturated ketone?



Dependence of the relative NMR-signal intensities of the aldehyde moiety and the olefinic moiety of the time (min). Left: without the addition of $\text{Ln}(\text{fod})_3$. Right: with the addition of an equimolar amount of $\text{Ln}(\text{fod})_3$.

Stereoselective Synthesis of 3,4-trans-1,2,3,4-Tetrahydropyridines
 Shestopavlov et al., Doklady Akademii Nauk SSSR, Vol. 314(4), pp. 870-875, 1990

In-situ preparation of pyridinium-ylids

