Zhurnal Organicheskoi Khimii
Russian Journal of Organic Chemistry

-Was founded in 1965 to cover all aspescts of modern organic chemistry
-Impact factor 0.513
-Editor-in-Chief is Irina P. Beletskaya (Academician of the RAS, Prof., Moscow State University)
-Available online since 1996
-No information on the most cited/read papers

Nobel Laureats from USSR:

Physics:
1958 P. Cherenkov, I. Frank and I. Tamm "for the discovery and interpretation of the Cherenkov effect"
1962 L. Landau "for his theories about condensed matter, particularly about liquid helium superfluidity"
1964 N. Basov and A. Prokhorov "for fundamental work in the area of the quantum electronics, which led to the construction of oscillators and amplifiers on the basis of the maser laser principle"
1978 P.Kapitsa "for his fundamental inventions and discoveries in Cryophysics"
2001 Z. Alferov (RU) "for the development of semiconductor heterostructures for high-speed and opto-electronics" (working in the time of the USSR)
2003 A.Abrikosov (RU), V. Ginzburg (RU) "for innovative work in the theory about superconductors" (working in the time of the USSR)
2010 A. Geim and K. Novoselov "for discovery of two-dimensional material Graphene" (born in the USSR, working in England)

Chemistry:
1956 Nikolai Semenov For outstanding work on the mechanism of chemical transformation including an exhaustive analysis of the application of the chain theory to varied reactions (1934–1954) and, more significantly, to combustion processes.

Why did Soviet Chemistry do much less well than other prestigious areas of the physical sciences, such as mathematics and physics?

-Soviet technology was most highly developed in the fields of nuclear physics, where the arms race with the West convinced policy makers to set aside sufficient resources for research.

-Space exploration was also highly developed: in October 1957 the Soviet Union launched the first artificial satellite, Sputnik 1, into orbit; in April 1961 a Russian cosmonaut, Yuri Gagarin, became the first man in space.

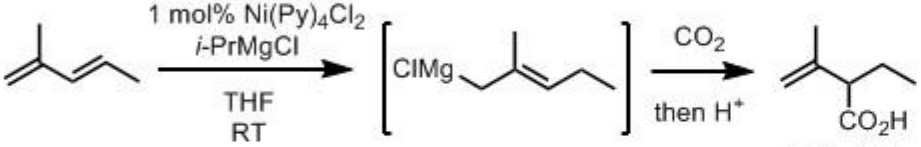
In an arms race vs the West it seems that chemistry, particularly synthetic, got simply left out.

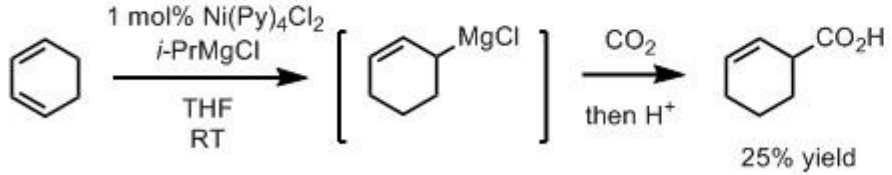
After World War II, many scientists were forbidden from cooperation with foreign researchers. The scientific community of the Soviet Union became increasingly closed. In addition to that, the party continued declaring various new theories "pseudo-scientific".

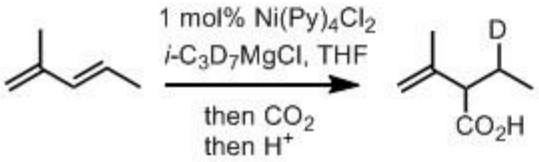
Since chemistry research was so secluded maybe there is potential for some hidden gems that might be useful/interesting to us. This group meeting covers 1967-1969,1973,1974, 1991-2014 years of Russian Journal of Organic Chemistry. Let's see what The Motherland has to offer!

Catalytic Hydromagnesation of Di- and Polymethyl-Substitueted 1,3-Butadienes

N.B Viktorov and L.M. Zubritskii. *Russ. J. Org. Chem.* 1999, 35, 1791

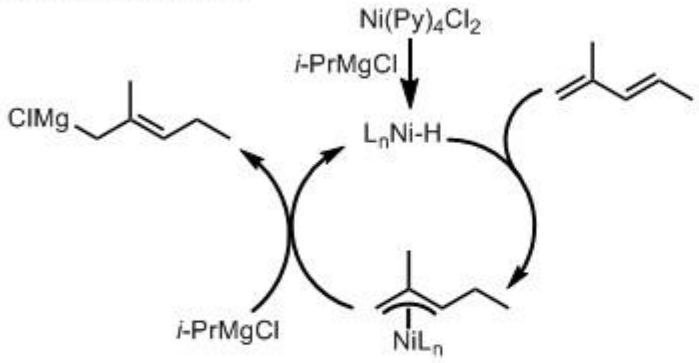






Using *i*-C_3D_7MgCl lead to deuterium incorporation

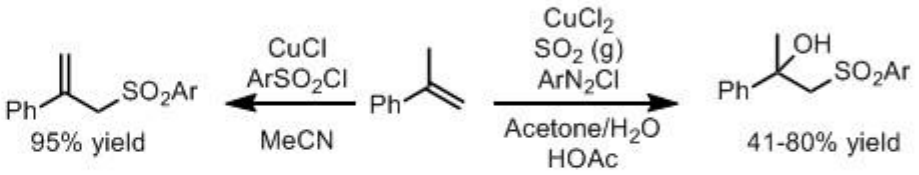
Proposed Mechanism:



Although, it is an interesting reaction the yields are quite poor and substrate scope is quite narrow. Much better way to perform hydromagnesation is to use Cp_2TiCl_2 as a catalyst (better yields and regioselectivities)

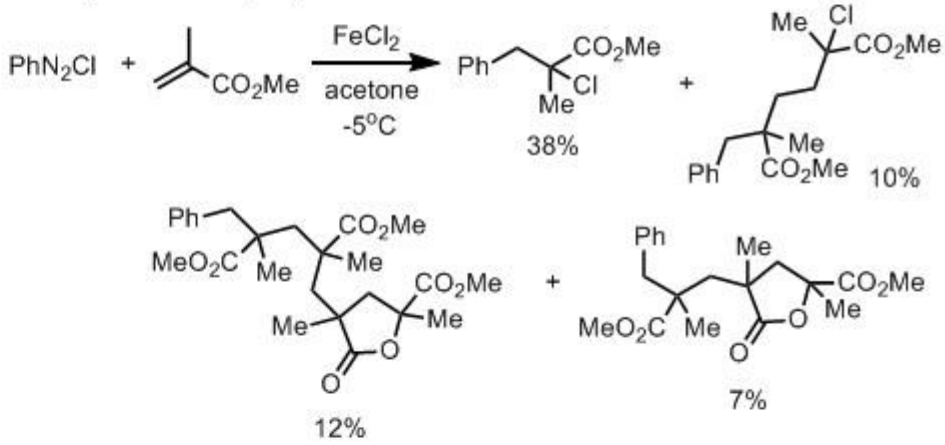
Special Features of 2-Phenylpropene Arenesulfonation

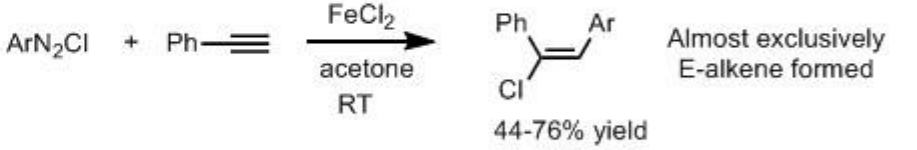
N. I. Ganushchak *et. al.* Russ. *J. Org. Chem*, 1999, 35, 632



Reaction of Methyl Methacrylate with Benzenediazonium Chloride in the Presence of $FeCl_2$

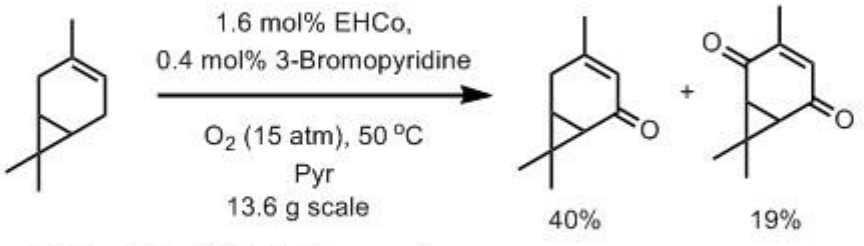
N.D. Obushak. Russ. *J. Org. Chem*, 1999, 35, 309;
Zh. Org. Khim 1993, 29, 731





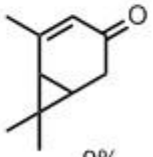
Catalytic Oxidation of (+)-3-Carene with Oxygen

E. G. Galkin *et. al.* Russ. *J. Org. Chem*, 1995, 31, 1044



EHCo = Cobalt (II) ethylhexanoate

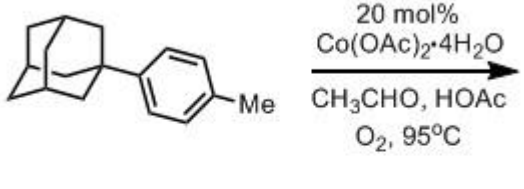
CrO_3, Pyr, O_2 gave only 20% yield of 3-caren-5-one

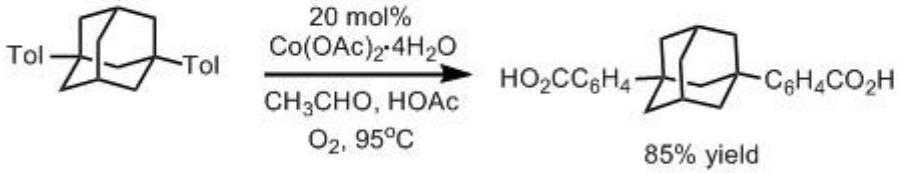


+ ~10% of other oxidation products

Synthesis of Adamatyl Derivatives of Benzene and Cyclohexane

T. A. Obukhova *et. al. Russ. J. Org. Chem*, 1995, 31, 1047

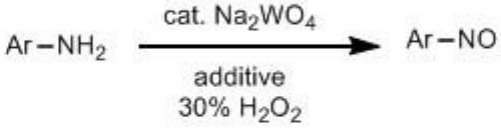




"Presently, there is no doubt that in the presence of cobalt catalyst oxidation proceeds by one-electron mechanism with intermediate formation of radical-ion transition states in the RDS..."

Oxidation of Primary Aromatic Amines, Catalyzed by Tungsten Compounds

E. B. Mel'nikov *et. al. Russ. J. Org. Chem*, 1995, 31, 1640



Seems to be pretty general method

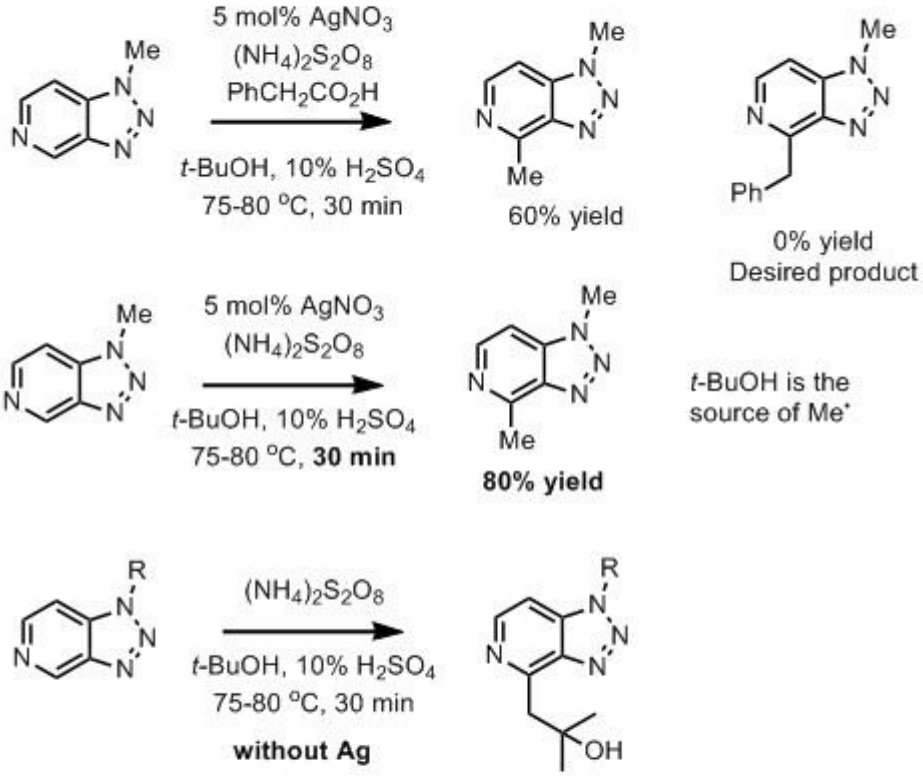
For Ar with **ortho-EWG** homogenoues conditions were best:
30 mol% Na_2WO_4, 1 eq. H_3PO_4, 30% H_2O_2, EtOH, 60 °C
Broad substrate scope with 74-98% yields

For Ar with **para-** or **meta-EWG** biphasic conditions were optimal:
10 mol% Na_2WO_4, 1 eq. H_3PO_4, 0.06 mol% TBAB, 30% H_2O_2, RT in Tol, DCM or Et_2O
76-93% yields with many EWG tolerated
Only haloanilines were somewhat problematic. 27-57% yields

For **EDG** acid was unneccessary:
5 mol% Na_2WO_4, 0.03 mol% TBAB, 30% H_2O_2, RT in Tol, DCM or Et_2O

Radical C-Alkylation of 1-Substituted 1,2,3-Triazolo[4,5-c]pyridines with *t*-BuOH

E. M. Yutilov *et. al. Russ. J. Org. Chem.* 1995 ,31, 171

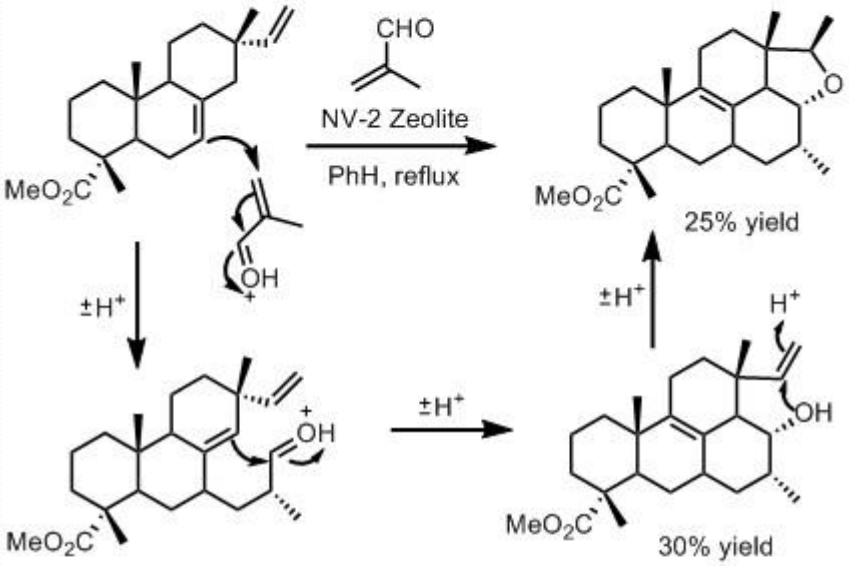


Yields 83-95% for 4 different R

A lucky substrate or a potential solution for direct methylation of heterocycles?

Condensation of Methyl Isopimarate with α,β-Unsaturated Aldehydes on Zeolites

E. V. Kuzakov *et. al. Russ. J. Org. Chem.* 1995 ,31, 171

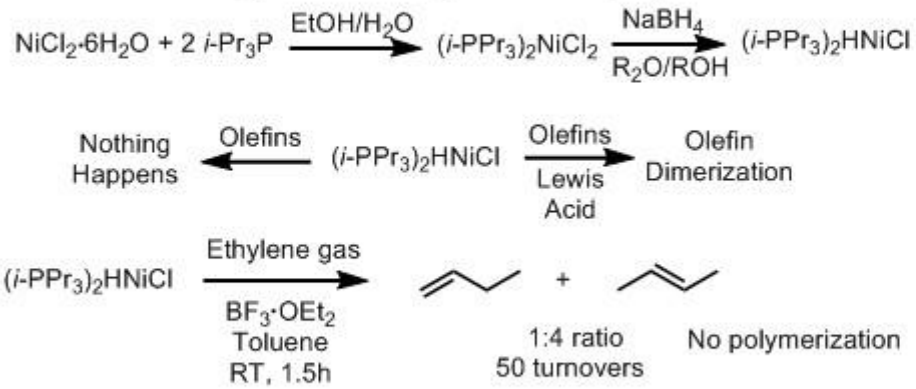


Zeolities - are microporous, aluminosilicate minerals.
General formula $M_aAl_bSi_cO_d \cdot nH_2O$, where M could be Na, K, Mg, Ca etc.
Mild acids similar to K-10 Clay.

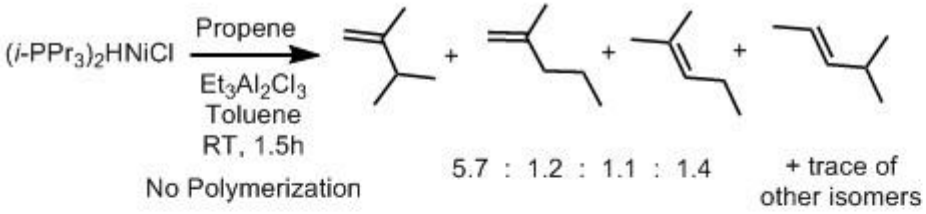
Classic Bronsted Acids such as HCOOH or HOAc failed to promote last step

Nickel Hydride catalyzed Dimerization of Olefins

N. V. Petrushanskaya *et. al. Zh. Org. Khim.* 1974 , 10, 1402



-TON dropped to just 18 when propene was used.
-$Et_3Al_2Cl_3$ (1:1 Et_2AlCl and $EtAlCl_2$) turned out to be the most effective Lewis acid increasing TON to 78 with propene
-TON of 7500 could be acieved but required 200 eq. of $Et_3Al_2Cl_3$



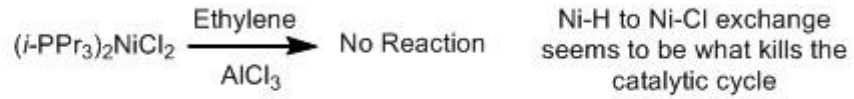
-Lewis Acid generates active species $[(i\text{-}PPr_3)_2HNi]^+ X^-$ via chalogen abstraction. However, alkylaluminums are in the league of their own. Why?

-Formation of species $[(i\text{-}PPr_3)_2HNi]^+ AlCl_4^-$ was ineed observed by IR
-Interestingly, using $AlCl_3$ as Lewis acid resulted in very poor TON
-It was noticed that Ni-H stretch in IR dissapeared rapidly upon addition of $AlCl_3$

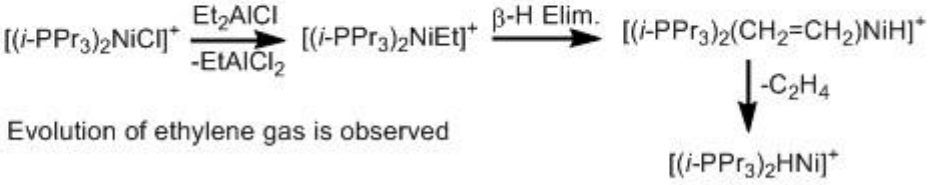
$[L_2NiH]^+ \longrightarrow [L_2NiCl]^+$

Exchange of M-H to M-Cl bond is favourable and well documented

$(i\text{-}PPr_3)_2HNiCl + AlCl_3$ and $(i\text{-}PPr_3)_2NiCl_2 + AlCl_3$ have almost identical IR spectra after short amount of time.



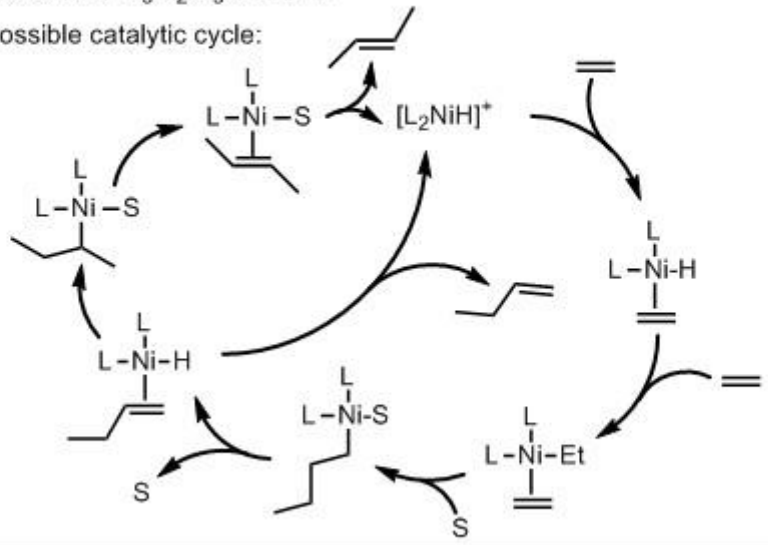
Alkylaluminums regenerate the active species:



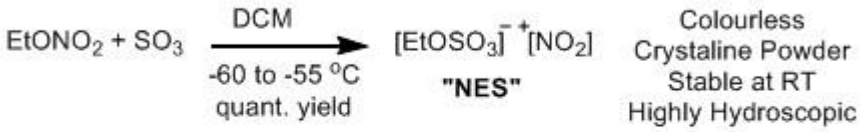
$(i\text{-}PPr_3)_2NiCl_2 + Et_3Al_2Cl_3$ shows an appearance of Ni-H band and IR spectra becomes identical with $(i\text{-}PPr_3)_2HNiCl + Et_3Al_2Cl_6$. They both possess same catalytic activity towards dimerization of olefins.

Independantly prepared $(CH_2{=}CH_2)_2NiL_2$ had same IR bands as L_2NiCl_2 mixed with $Et_3Al_2Cl_3$ at -78°C

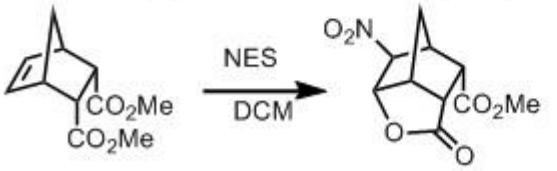
Possible catalytic cycle:

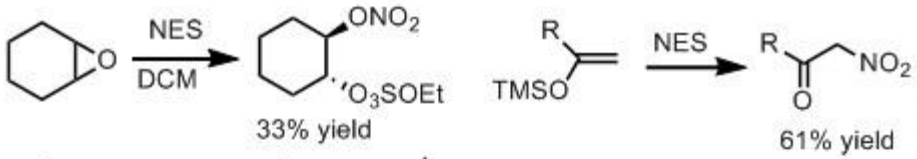


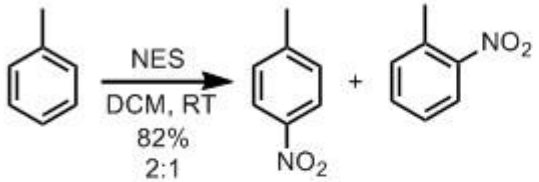
Nitronium Ethyl Sulfate - A New Electrophilic Reagent.
N. V. Zyk *et. al. Russ. J. Org. Chem.* 1995 , 31, 840

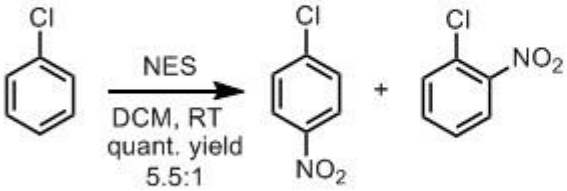


-Confirmed anionic structure by Raman and ^{15}N NMR
-Highly reactive nitrating agent, similar or better results vs NO_2BF_4
-Seems to be more stable and easier to handle than NO_2BF_4 (generates HF and HNO_3 when in reacts with H_2O to generate HF and HNO_3)



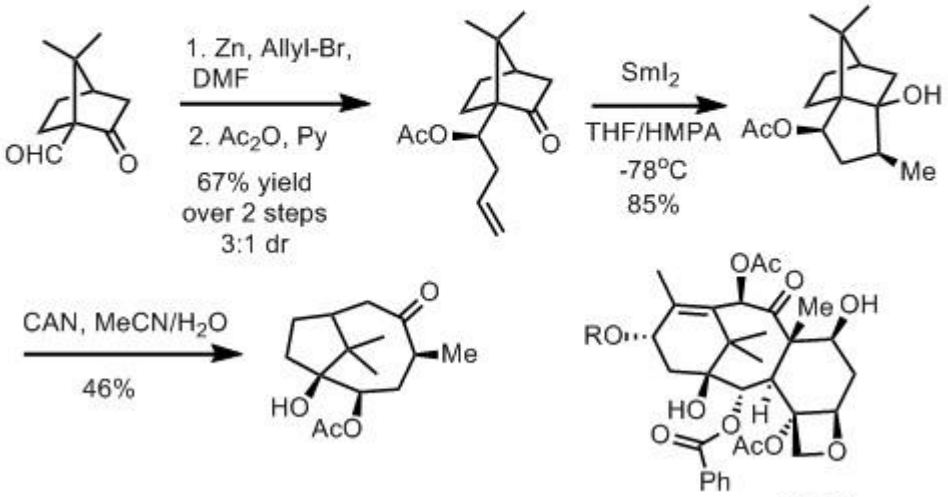




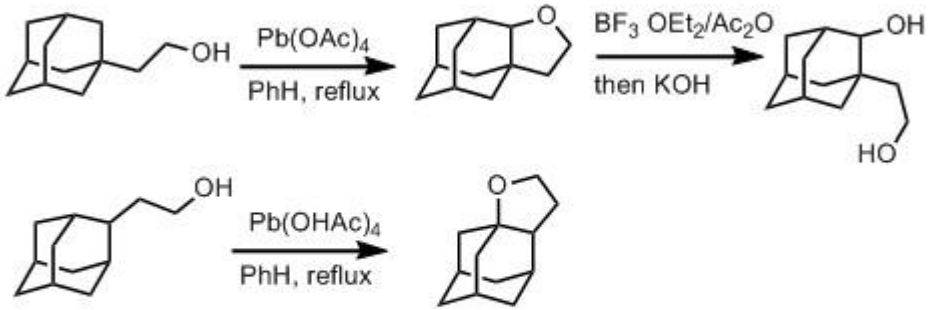


It should be possible to make a wide variety of $[RSO_4][NO_2]$ reagents from RNO_3. One of them can possess desired physical properties (bech-stable non-hydroscopic solid) that has similar reactivity. Potential for new mild and selective nitrating agent?

New Synthetic Strategy of Taxol Preparation
I. N. Gaisina *et. al.* Russ. *J. Org. Chem*, 1999, 35, 1240



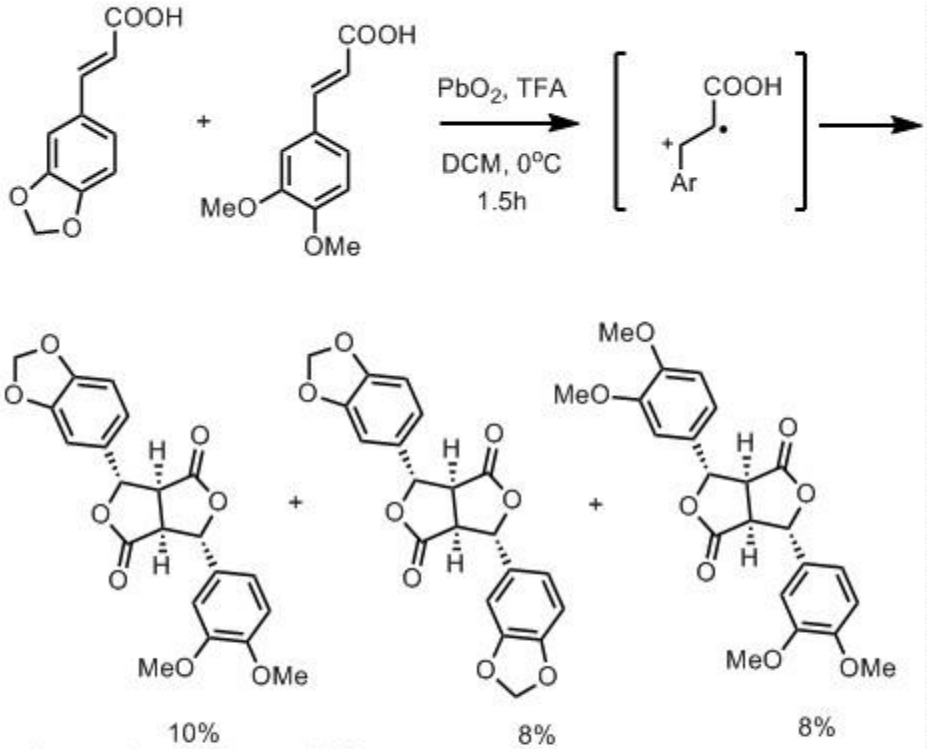
$Pb(OAc)_4$ mediated C-H Oxidation
Zurabishvili *et. al.* Conference on Poluedrane Chemistry, Volgograd 1981



Couldn't find any information on yields. It is however "main product". Interestingly in polar solvents (Pyr) oxidation to aldehyde and carboxylic acid has occured.

New One-Pot Synthesis of Lignan Natural Products

A. P. Rudenko *et. al. Russ. J. Org. Chem.* 1998 , 34, 1515



10%
3 steps in total, 2 steps LLS
Previously made in 9 steps
LLS

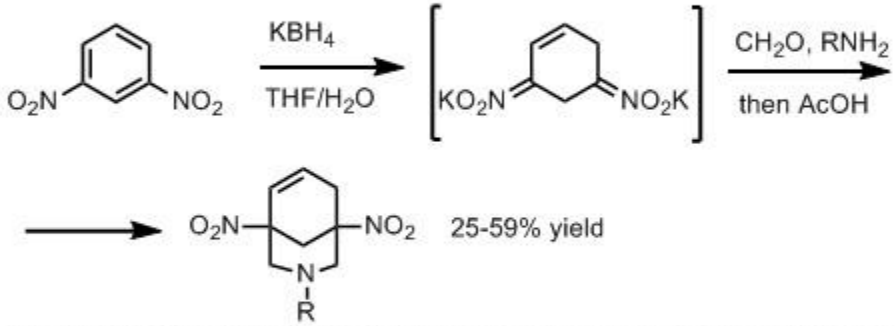
8%

8%

Yields were not optimized. Majority of the mass goes to "tar-like substance"

Synthesis of 1,5-Dinitro[3.3.1]non-6-ene Derivatives

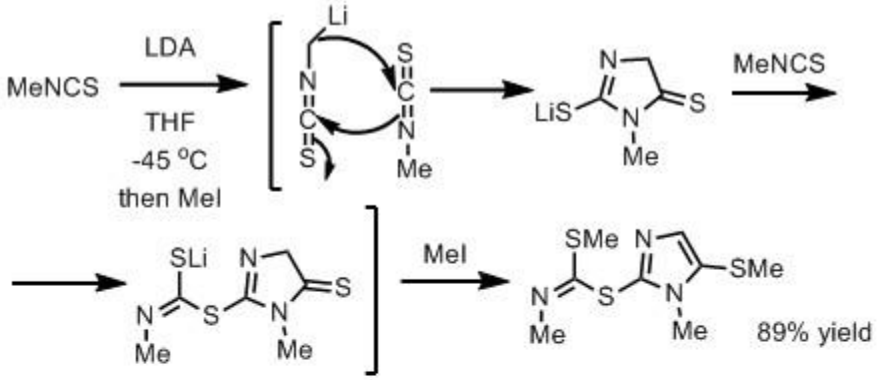
Y. M. Atroshchenko *et. al. Russ. J. Org. Chem.* 1999, 35, 1308



Reactions of Isocyanates with Organometallic Reagents: New Thiazole and Imidazole Derivatives

N. A. Nedolya *et. al. Russ. J. Org. Chem.* 1999, 35, 921

Addition of LDA to MeNCS in THF:



Addition of MeNCS to LDA in THF: