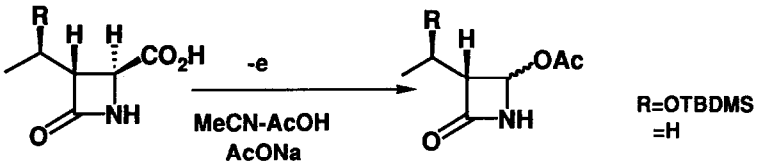
Tetrahedron, **1990**, *47*, 531

NEW SYNTHESIS OF 4-ACETOXY-2-AZETIDINONES BY USE OF ELECTROCHEMICAL OXIDATION

Miwako Mori*, Katsuji Kagechika, Hiroaki Sasai, and Masakatsu Shibasaki*
Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo 060, Japan

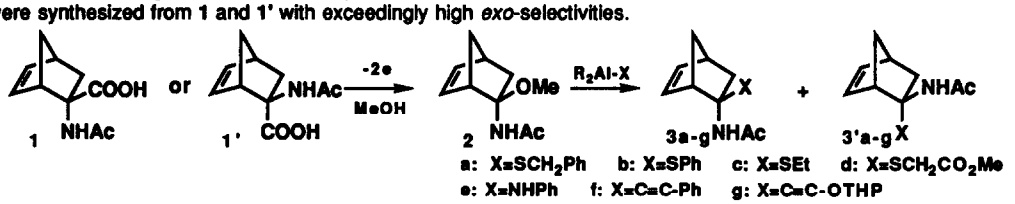


Tetrahedron, **1990**, *47*, 541

A TWO-STEP SYNTHESIS OF 2-*EXO*-SUBSTITUTED 2-*ENDO*-AMINONORBORNENES FROM 2-ACETAMIDONORBORNENE-2-CARBOXYLIC ACIDS

Hiroyoshi Yamazaki, Hiroshi Horikawa, Takashi Nishitani, Tameo Iwasaki*, Kimio Okamura, and Tadamasa Date.
Department of Synthetic Chemistry, Research Laboratory of Applied Biochemistry, Tanabe Seiyaku Co., Ltd.,
3-16-89 Kashima, Yodogawa, Osaka 532, Japan.

3a-g were synthesized from 1 and 1' with exceedingly high *exo*-selectivities.

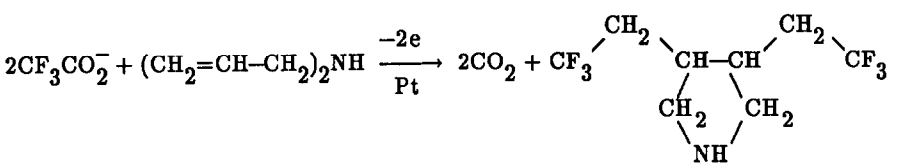


Tetrahedron, **1990**, *47*, 549

ELECTROCHEMICAL SYNTHESIS OF CIS–3,4–BIS(2,2,2–TRIFLUOROETHYL)PYRROLIDINE

Norbert Muller
Department of Chemistry, Purdue University, West Lafayette, Indiana 47907

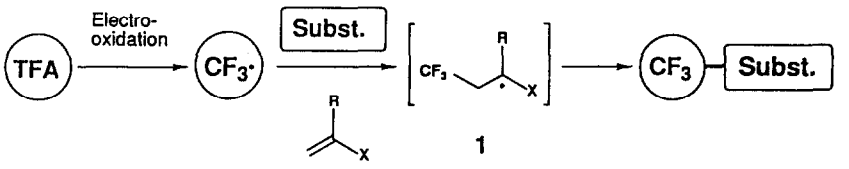
The title compound was prepared by anodic oxidation of trifluoroacetate in the presence of diallylamine, isolated as the hydrochloride, and converted to the N–butyl derivative, whose nmr spectra showed the trifluoroethyl groups to be on the same side of the ring.



Tetrahedron, **1990**, *47*, 555

ELECTROCHEMICAL TRIFLUOROMETHYLATION OF OLEFINS;
PRODUCT-SELECTIVITY AND MECHANISTIC ASPECTS

Kenji Uneyama
Department of Applied Chemistry, Faculty of Engineering,
Okayama University, Okayama 700, Japan

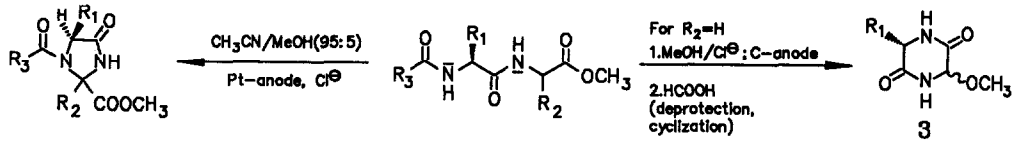


Tetrahedron, **1990**, *47*, 563

ANODIC OXIDATION OF *N*-ACYL AND *N*-ALKOXYCARBONYL DIPEPTIDE ESTERS AS A KEY STEP FOR THE FORMATION OF CHIRAL HETEROCYCLIC SYNTHETIC BUILDING BLOCKS

Apostolos Papadopoulos, Burhansha Lewall, Eberhard Steckhan*, Klaus-Dieter Ginzel, Falk Knoch, and Martin Nieger
Institut für Organische Chemie und Biochemie der Universität, Gerhard-Domagk-Str. 1, D-5300 Bonn 1, F.R.G.

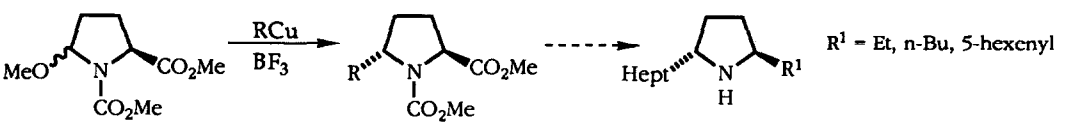
Anodic oxidation of *N*-acyl dipeptide esters using chloride as redox catalyst can be performed regioselectively at the C-terminal amino acid. In this way either methyl imidazolidin-4-one-2-carboxylates or (3*S*,6*RS*)-6-methoxy-2,5-piperazinediones (3) can be obtained. 3 can be applied as chiral cationic glycine equivalent.



Tetrahedron, **1990**, *47*, 573

CHIROSPECIFIC SYNTHESIS OF TRANS-2,5-DISUBSTITUTED PYRROLIDINES VIA STEREOSELECTIVE ADDITION OF ORGANOCOPPER REAGENTS TO N-ACYLIMINIUM IONS.

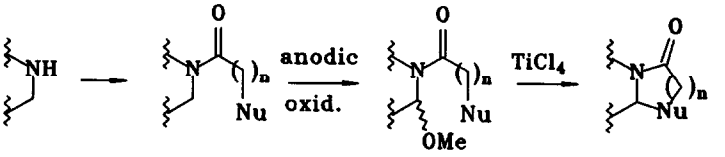
L.-G. Wistrand, M. Skrinjar, Organic Chemistry 3, University of Lund,
Chemical Center, P. O. Box 124, S-221 00 Lund, Sweden.



Tetrahedron, **1990**, *47*, 583

ANODIC AMIDE OXIDATIONS: FUNDAMENTAL STUDIES CONCERNING THE ANNULATION OF SIX- AND SEVEN-MEMBERED RINGS ONTO AMINES. Kevin D. Moeller,* Scott L. Rothfus, and Poh Lee Wong, Department of Chemistry, Washington University, St. Louis, MO 63130.

The compatibility of olefinic and acetylenic nucleophiles with an electrochemically based procedure for annulating rings onto amines and amino acid derivatives has been examined.

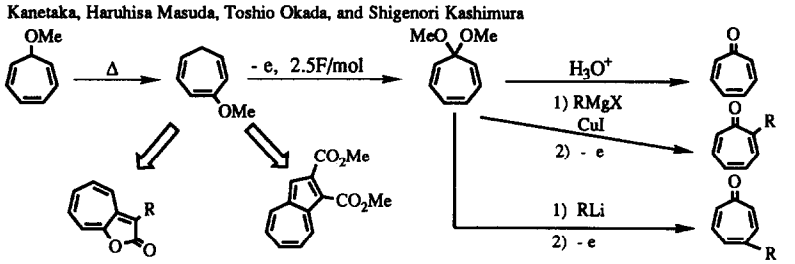


Nu=olefin or acetylene

Tetrahedron, **1990**, *47*, 593

ANODIC OXIDATION OF CYCLOHEPTATRIENE SYSTEMS AND ITS APPLICATION TO THE SYNTHESIS OF NON-BENZENOID AROMATIC COMPOUNDS

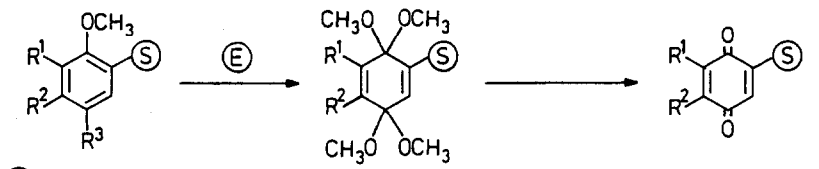
Tatsuya Shono,* Tetsuo Nozoe, Hirofumi Maekawa, Yoshihide Yamaguchi, Shinya Kanetaka, Haruhisa Masuda, Toshio Okada, and Shigenori Kashimura



Tetrahedron, **1990**, *47*, 605

GENERAL SYNTHESIS OF CHIRAL 2-p-TOLYLSULFINYLQUINONES

M. Carmen Carreño*, José L. García Ruano*, José M. Mata and A. Urbano. Departamento de Química (C-I), Universidad Autónoma, Cantoblanco, 28049-Madrid, SPAIN.

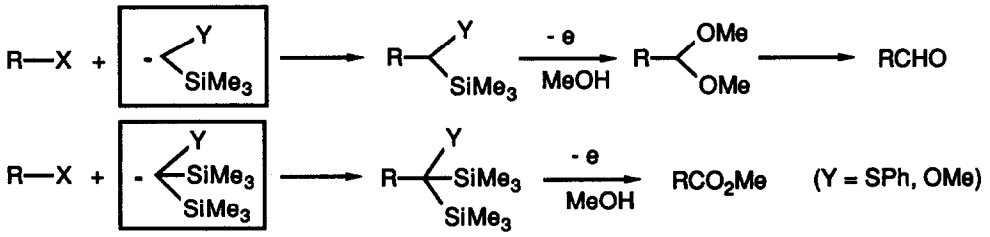


S = STol, SOTol, SO_2Tol

Tetrahedron, **1990**, *47*, 615

NEW ONE CARBON HOMOLOGATION REAGENTS UTILIZING ELECTROCHEMICAL OXIDATION OF ORGANOSILICON COMPOUNDS[1]

Jun-ichi Yoshida,* Shin-ichiro Matsunaga, Toshiki Murata, and Sachihiko Isoe*
Institute of Organic Chemistry, Faculty of Science, Osaka City University, Sugimoto 3-3-138, Osaka 558, Japan

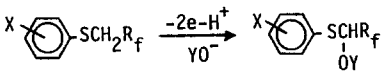


Tetrahedron, **1990**, *47*, 625

ELECTROLYTIC REACTIONS OF FLUORO ORGANIC COMPOUNDS. 8. FURTHER STUDY ON ANODIC METHOXYLATION AND ACETOXYLATION OF ARYL FLUOROALKYL SULFIDES

Toshio Fuchigami,* Kayoko Yamamoto, and Akinori Konno
Department of Electronic Chemistry, Tokyo Institute of Technology,
Nagatsuta, Midori-ku, Yokohama, 227, Japan

Anodic α-methoxylation and α-acetoxylation of substituted phenyl 2,2,2-trifluoroethyl sulfides 1 and fluoroalkyl phenyl sulfides 2 were studied from both synthetic and mechanistic aspects.



1: R_f=CF_3, X=H, F, Me, MeO

2: X=H, R_f=$CF_3(CF_2)_n$, CHF_2, CH_2F, CHClF

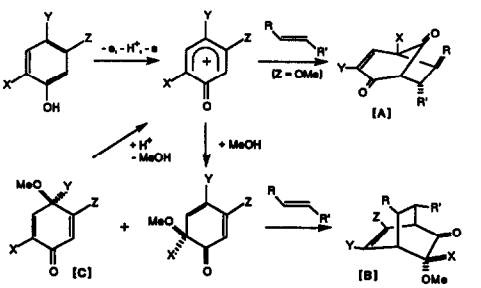
Tetrahedron, **1990**, *47*, 635

NATURAL PRODUCTS SYNTHESES USING ANODIC OXIDATION OF PHENOLS AS A KEY STEP

Shosuke Yamamura*, Yoshikazu Shizuri, Hideyuki Shigemori, Yoshishige Okuno, and Mitsuru Ohkubo
Department of Chemistry, Faculty of Science and Technology, Keio University, Hiyoshi, Yokohama, 223, Japan

Some natural products have been synthesized on the basis of Scheme 1.

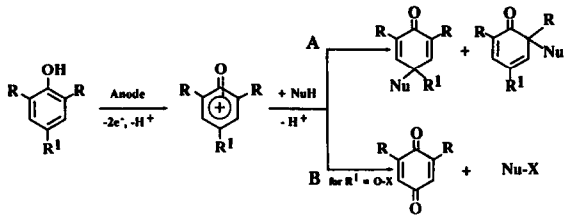
Scheme 1.



Tetrahedron, **1990**, *47*, 645

SYNTHESES VIA ANODICALLY PRODUCED PHENOXENIUM IONS. APPLICATIONS IN THE FIELD OF PEPTIDES AND CARBOHYDRATES

Anton Rieker*, Rudolf Beisswenger, and Klaus Regier
Institut für Organische Chemie der Universität, D-7400 Tübingen, Federal Republic of Germany



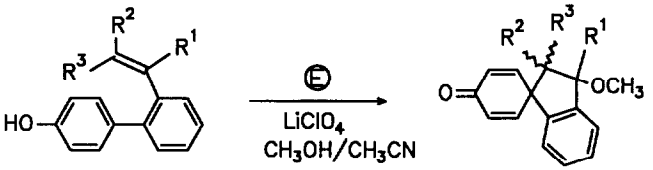
NuH = H_2O, Alcohol, Sugar, Z-Amino Acid

For NuH = H_2N-CHR^4COOR^5,
X = CO-CHR^2NHR^3: NuX = Dipeptide
For NuH = HO-Sugar,
X = $COCHR^2NHR^3$: NuX = Glycoamino Acid

Tetrahedron, **1990**, *47*, 655

INTRAMOLECULAR CYCLIZATION OF 2'-OLEFINIC SIDE-CHAINS ON ANODICALLY OXIDIZED 4-PHENYLPHENOLS. THE EFFECT OF OLEFIN SUBSTITUENTS ON CARBON-CARBON BOND FORMATION

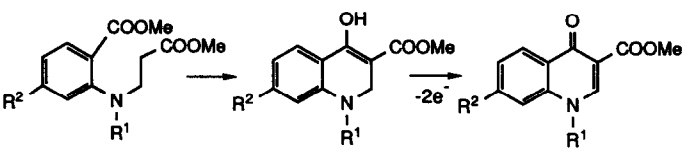
Gary W. Morrow, Ying Chen, and John S. Swenton*
Department of Chemistry, The Ohio State University, Columbus, OH 43210 USA



Tetrahedron, **1990**, *47*, 665

A CONVENIENT APPROACH TO 1,4-DIHYDRO-4-OXO-3-QUINOLINE CARBOXYLATES BY ELECTRO-OXIDATIVE FORMATION OF ENAMINE MOIETY; Sigeru TORII,* Hiroshi OKUMOTO, and Long He XU
Department of Applied Chemistry, Faculty of Engineering, Okayama University, Tsushima Naka, Okayama 700, Japan

Quinolinone carboxylate derivatives have been synthesized by employing an anodic oxidation as a key reaction.

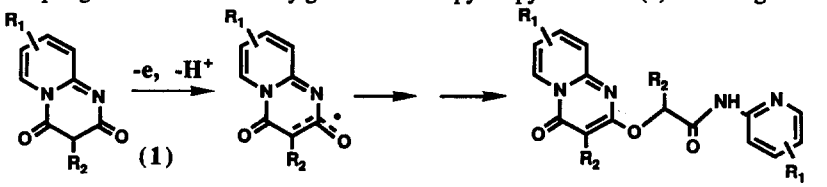


Tetrahedron, **1990**, *47*, 675

ELECTRO-ORGANIC REACTIONS. PART35. EFFICIENT CARBON-OXYGEN BOND FORMATION IN THE ANODIC COUPLING OF PYRIDOPYRIMIDINE DERIVATIVES.

M. Gullu, L.A. Razack, J.H.P. Utley (Queen Mary College, London E1 4NS, UK);
R.J. King and G.R. White (S.K.andF. Research Ltd., Welwyn, Herts AL6 9AR, UK)

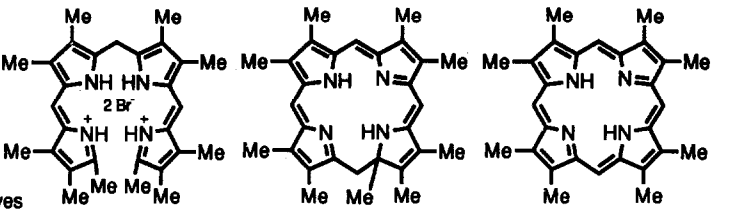
Coupling of radicals anodically generated from pyridopyrimidones (**1**) according to:



Tetrahedron, **1990**, *47*, 685

TETRAPYRROLE PRODUCTS FROM ELECTROCHEMICAL CYCLIZATION OF 1',8'-DI-SUBSTITUTED-A,C-BILADIENE SALTS, Kristin L. Swanson, Kevin M. Snow, D. Jeyakumar, and Kevin M. Smith. Dept. of Chemistry, University of California, Davis, CA 95616.

Anodic oxidation of a,c-biladiene salts (**4**) gives porphyrins (**18**) via a novel intermediate (**16**).

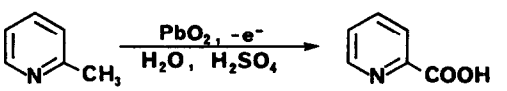


Tetrahedron, **1990**, *47*, 697

ANODIC OXIDATION OF 2-PICOLINE

Joseph E. Toomey, Jr.*, Gregory A. Chaney
Reilly Industries, Inc., 1500 S. Tibbs Avenue
Indianapolis, IN 46241

Optimization of a process to oxidize 2-picoline to picolinic acid was done using factorial-designed experiments.

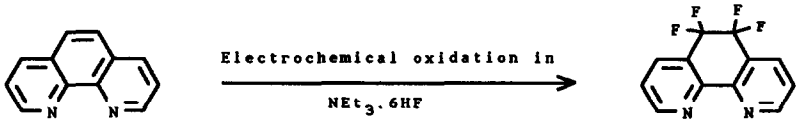


Tetrahedron, **1990**, *47*, 705

OXIDATIVE FLUORINATION IN AMINE-HF MIXTURES

Jan H.H.Meurs and Wolf Eilenberg
Koninklijke/Shell-Laboratorium, Amsterdam (Shell Research B.V.)
Postbus 3003, 1003 AA Amsterdam (The Netherlands)

The selective electrochemical fluorination of alkenes, phenanthroline, naphthalene and chlorobenzene in neat amine-HF mixtures is described, together with the chemistry of 4,4-difluorocyclohexadienone.

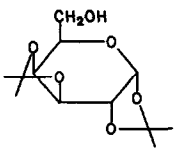


Tetrahedron, **1990**, *47*, 715

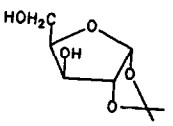
Oxidation of Partially Protected Carbohydrates at the Nickel Hydroxide Electrode

Hans J. Schäfer, Roy Schneider, Organisch-Chemisches Institut der Universität Münster, Corrensstr. 40, D-4400 Münster, FRG

Primary hydroxy groups in pyranoses, e.g. **1**, are oxidized in excellent yields to the corresponding carboxylic acids at the nickel hydroxide electrode. Aside from lactols, secondary hydroxy groups are inert. **8** is selectively oxidized at the primary hydroxy group.



1



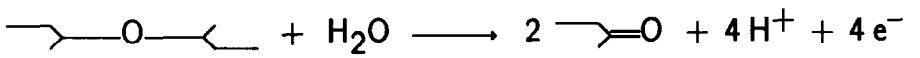
8

Tetrahedron, **1990**, *47*, 725

ANODIC OXIDATION OF ISOALKYL-ETHERS IN AQUEOUS ELECTROLYTES

Fritz Beck*, Bernd Wermeckes and Wolfgang Janßen
Universität Duisburg, FB 6 – Elektrochemie, D–4100 Duisburg 1, Lotharstr. 1, Germany

Three isoalkylethers, di–sec–butylether (DSBE), di–i–propylether (DIPE) and t–butylmethylether (TBME) were oxidized in 1 M H_2SO_4 (mostly as emulsions) at Pt anodes. Solubility was improved by cosolvents, e.g. CH_3CN. The standard current density was 750 A m^{-2}. Methylethylketone MEK was the main product, obtained with c.e. of 50 % (yield 70 %), for the cleavage of DSBE:

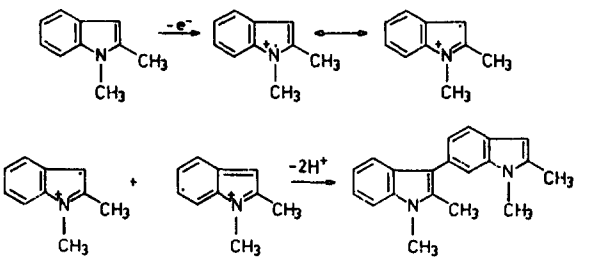


Tetrahedron, **1990**, *47*, 737

ELECTROSYNTHETIC ASPECTS OF ANODIC REACTIONS OF ANILINES AND INDOLES

R. HOLZE AND C.H. HAMANN, Universität Oldenburg, Fachbereich Chemie, Carl-von-Ossietzky-Str. 9-11, D-2900 Oldenburg, West Germany

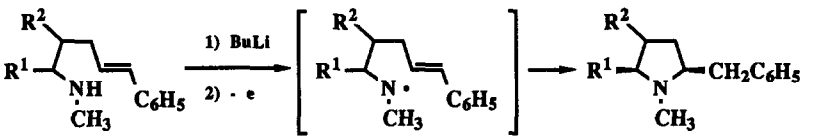
The electrochemical oxidation of aniline, indole and their various alkyl-subsituted derivatives leads to the formation of various products including intrinsically conducting polymers. The application of electrochemical techniques, preferably *in situ* methods, to the characterisation of radical intermediates and of solid state properties of the polymers is described.



Tetrahedron, **1990**, *47*, 747

STEREOSELECTIVE SYNTHESIS OF 4- OR 5-SUBSTITUTED 2-BENZYL- AND 2-BENZOYLPYRROLIDINES BY MEANS OF ANODIC OXIDATION OF δ-ALKENYLAMINES

Masao Tokuda,* Tohru Miyamoto, Hirotake Fujita, and Hiroshi Suginome
Organic Synthesis Division, Faculty of Engineering, Hokkaido University, Sapporo 060, Japan



R^1=H, CH_3, or C_6H_5; R^2=H

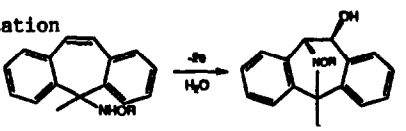
R^1=H; R^2=CH_3 or C_6H_5

Tetrahedron, **1990**, *47*, 757

CYCLIZATION OF ELECTROCHEMICALLY GENERATED NITROGEN RADICALS. A NOVEL SYNTHESIS OF 11-SUBSTITUTED DIBENZO [a,d]CYCLOHEPTENIMINE DERIVATIVES

Sandor Karady, Edward G. Corley, Newton L. Abramson, Joseph S. Amato and Leonard M. Weinstock
Merck Sharp & Dohme Research Laboratories, Process Research Department, P.O. Box 2000, Rahway, N.J. 07065

The synthesis of the title compounds was achieved by cyclization of the aminium radicals generated by anodic oxidation of substituted hydroxylamines.



Tetrahedron, **1990**, *47*, 767

ELECTROCHEMICAL GENERATION AND REACTIONS OF ACYLOXYTRIPHENYLPHOSPHONIUM IONS

H. Ohmori,* H. Maeda, M. Kikuoka, T. Maki, and M. Masui
Faculty of Pharmaceutical Sciences, Osaka University,
1-6 Yamadaoka, Suita, Osaka 565, Japan

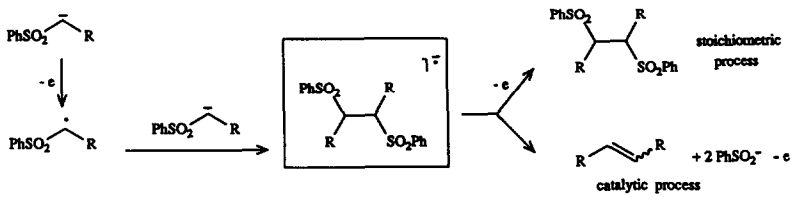
Constant-current electrolysis of Ph_3P in the presence of a carboxylic acid in CH_2Cl_2 containing 2,6-lutidinium perchlorate ($LutClO_4$) was shown to afford the title phosphonium ion under mild conditions.

$$Ph_3P \xrightarrow[RCOOH,\ LutClO_4 \text{ in } CH_2Cl_2]{\text{electrochemical oxidation}} Ph_3P^+\text{-}OCOR$$

Tetrahedron, **1990**, *47*, 777

COUPLING BETWEEN RADICAL AND ANION IN THE OUTERSPHERE OXIDATION OF α-SULFONYL CARBANIONS. ITS ROLE ON THE PRODUCT DISTRIBUTION BETWEEN DIMERIC OLEFIN AND DISULFONE.

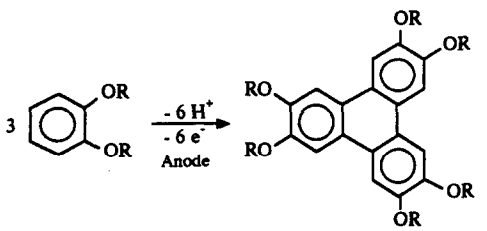
Christian Amatore*, Touriya El Moustafid, Christian Rolando, Jean-Noël Verpeaux*, *Laboratoire de Chimie de l'Ecole Normale Supérieure, URA CNRS 1110, 24 rue Lhomond, 75231 Paris Cédex 05, France.*
André Thiébault, *Laboratoire de Chimie et d'Electrochimie des Matériaux Moléculaires, URA CNRS 429, E.S.P.C.I., 10 rue Vauquelin, 75231 Paris Cédex 05, France.*



Tetrahedron, **1990**, *47*, 791

THE ANODIC TRIMERIZATION OF AROMATIC ORTHODIETHERS : NEW DEVELOPMENTS.

Jean-Marc Chapuzet and Jacques Simonet*
Laboratoire d'Electrochimie, Université de Rennes I - 35042 RENNES CEDEX (France).



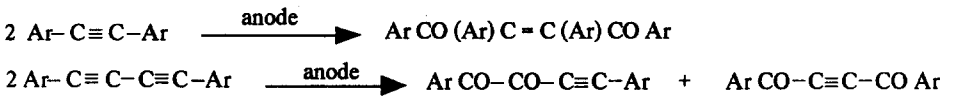
The anodic synthesis leads to mixtures of compounds when (i) two different orthodiethers are electrolyzed - 4 hexa-alkoxy triphenylenes obtained - (ii) a disymmetrical orthodiether is oxidized. - 2 isomers -.

Tetrahedron, **1990**, *47*, 799

ANODIC OXIDATION OF DIARYLACETYLENES AND DIARYLDIACETYLENES : ELECTROSYNTHESIS OF DIAROYL-STILBENES AND ACETYLENIC α- AND γ-DIKETONES.

Michel CARIOU, Laboratoire d'Electrochimie Organique, U.R.A. CNRS n° 439
Université Catholique de l'Ouest, B.P. 808, 49005 Angers Cedex, France.

At a graphite plate anode, in MeCN – $LiClO_4$, the electrooxidation of diarylacetylenes gives mostly diaroylstilbenes, and the electrooxidation of diaryldiacetylenes gives a mixture of acetylenic α- and γ-diketones :

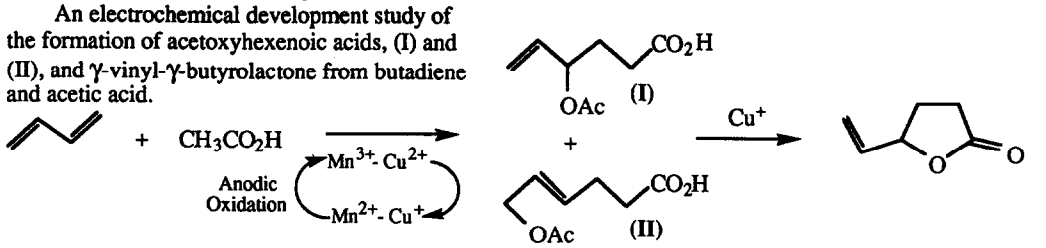


Tetrahedron, **1990**, *47*, 809

A PRACTICAL SYSTEM FOR MANGANESE (III) - MEDIATED ELECTROCHEMICAL SYNTHESIS OF SORBIC ACID PRECURSORS.

J.P. Coleman, R.C. Hallcher, D.E. McMackins, T.E. Rogers, J.H. Wagenknecht
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, Mo. 63167

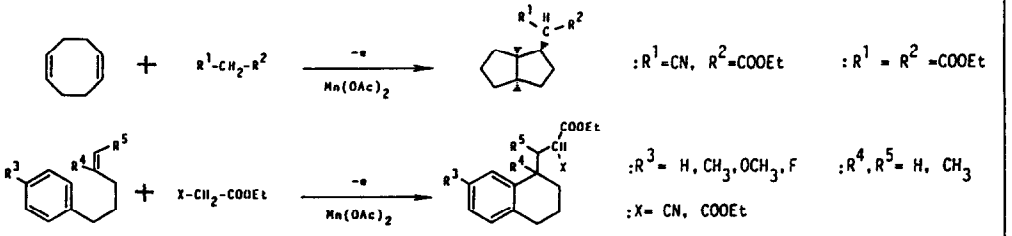
An electrochemical development study of the formation of acetoxyhexenoic acids, (I) and (II), and γ-vinyl-γ-butyrolactone from butadiene and acetic acid.



Tetrahedron, **1990**, *47*, 831

NOVEL CARBON-CARBON BOND FORMATION USING MANGANESE(III) ACETATE AS AN ELECTROCHEMICAL MEDIATOR

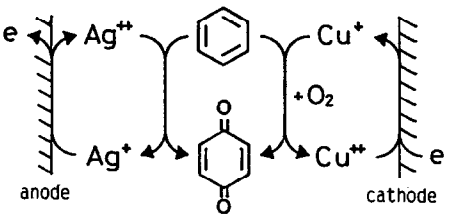
Ryushi SHUNDO, Ikuzo NISHIGUCHI*, Yoshiharu MATSUBARA, and Tsuneaki HIRASHIMA



Tetrahedron, **1990**, *47*, 841

DUET ELECTROSYNTHESIS OF p-BENZOQUINONE FROM BENZENE

Sotaro Ito,* Mikio Iwata, and Kazuo Sasaki
Department of Applied Chemistry
Faculty of Engineering
Hiroshima University
Higashi Hiroshima 724 Japan



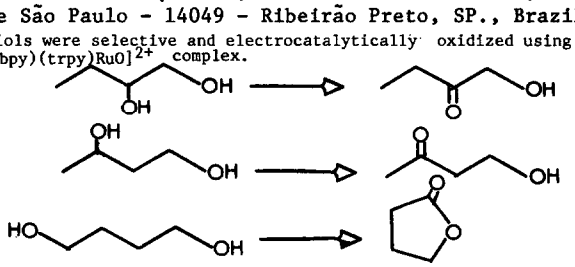
270 mmol F^{-1}

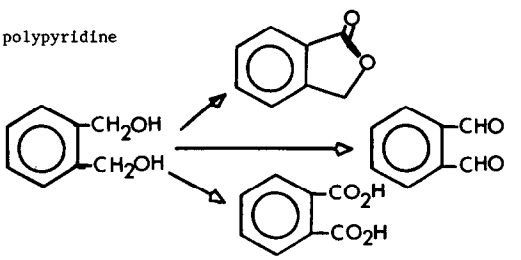
Tetrahedron, **1990**, *47*, 851

SELECTIVITY IN CATALYTIC DIOL ELECTROOXIDATION USING A POLYPYRIDINE Ru(IV) COMPLEX

Marcelo Navarro, Wagner F.De Giovani and José R.Romero - Departamento de Química, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo - 14049 - Ribeirão Preto, SP., Brazil.

Diols were selective and electrocatalytically oxidized using the polypyridine $[(bpy)(trpy)RuO]^{2+}$ complex.



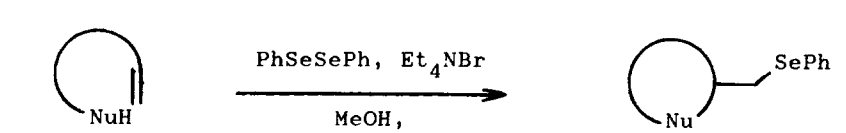


Tetrahedron, **1990**, *47*, 859

ELECTROCHEMICAL CYCLIZATION OF UNSATURATED HYDROXY COMPOUNDS. PHENYLSELENOETHERIFICATION AND PHENYLSELENOLACTONIZATION

R. Vukićević, S. Konstantinović and M. Lj. Mihailović

Department of Chemistry, Faculty of Science, Svetozar Marković University, Kragujevac; Department of Chemistry, Faculty of Science, University of Belgrade. Belgrade, Yugoslavia

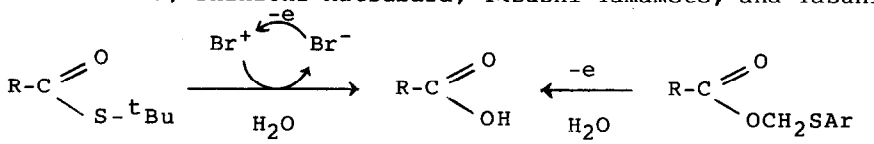


NuH = OH, COOH

Tetrahedron, **1990**, *47*, 867

Electrooxidative C-S Cleavages as a Neutral Deprotection for Carboxylic Acids

Makoto Kimura, Shinichi Matsubara, Yasushi Yamamoto, and Yasuhiko Sawaki



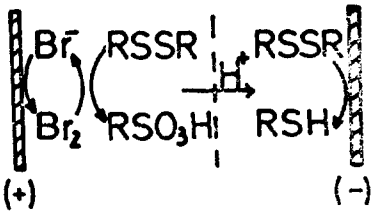
1 2

Neutral deprotection of carboxylates **1** and **2** are achieved by electro-oxidative C-S cleavages to give carboxylic acids.

Tetrahedron, **1990**, *47*, 877

SYNTHESIS OF l-CYSTEIC ACID BY INDIRECT ELECTROOXIDATION AN EXAMPLE OF PAIRED SYNTHESIS: l-CYSTEIC(RSO_3H) AND l-CYSTEINE(RSH) FROM l-CYSTINE(RSSR)

G.Sanchez-Cano, V.Montiel, A.Aldaz
Departamento de Quimica Física. Universidad de Alicante. Apto.99.03080.Alicante.Spain



The synthesis of l-cysteic acid from l-cystine by oxidation with electrochemically generated bromine in aqueous-HBr solution and a very interesting process of paired synthesis has been proposed.

Tetrahedron, **1990**, *47*, 887

ANODIC GENERATION OF POLYBROMOCHLORIDE IONS AND THEIR UTILIZATION AS PRECISELY-CONTROLLED OXIDIZING REAGENTS FOR EX-CELL INDIRECT ELECTROOXIDATION OF ALCOHOLS

Akinori Konno, Kouta Fukui, Toshio Fuchigami and Tsutomu Nonaka*

Anodic generation of $Br_xCl_y^-$ from mixtures of Br^-+Cl^- in CH_2Cl_2 and controlled oxidation of alcohols with $Br_xCl_y^-$ to the corresponding carbonyl compounds;

$$x\,Br^- + y\,Cl^- \longrightarrow Br_xCl_y^- + (x+y-1)\,e^-$$

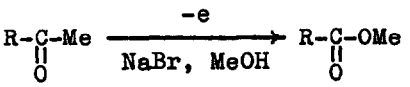
$$\frac{x+y-1}{2}\ R\text{-}CH(OH)\text{-}R' + Br_xCl_y^- \longrightarrow \frac{x+y-1}{2}\ R\text{-}C(=O)\text{-}R' + (x+y-1)\,H^+$$

R,R' = Ph,H; p-MeC_6H_4, H; Ph, Me; Ph,PhCO; $\{CH_2\}_4CH(Me)$-

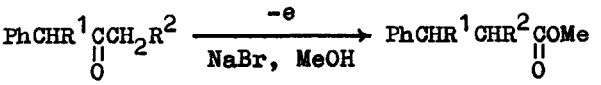
Tetrahedron, **1990**, *47*, 895

ELECTROCHEMICAL OXIDATION OF KETONES IN METHANOL IN THE PRESENCE OF ALKALI METAL BROMIDES

Gennady I. Nikishin*, Michail N. Elinson, and Irina V. Makhova.
N.D. Zelinsky Institute of Organic Chemistry, U.S.S.R. Academy of Sciences, Moscow, U.S.S.R.



R = alkyl, aryl



R^1, R^2 = alkyl