Highlight Review

552 Stereoselective C-Alkynylation, Allenylation, and Prop-2-ynylation Leading to Sugar Glycosides

Rungnapha Saeeng and Minoru Isobe

Carbohydrates have been recognized and utilized for a long time as the starting materials for target-oriented syntheses toward optically active compounds. C-Glycosides are often employed for this purpose because they have much potential for the introduction of new stereogenic centers to the side chain. We describe herein various methods for the introduction of carbon chains to the sugar rings under acidic condition, particularly in the form of alkynyl, allenyl, or prop-2-yny group at the anomeric position with high stereoselectivity.

Letter

558 Synthesis and Structural Features of a Series of κ³SNS Pincer Complexes of Group 10 Metals σ-Bonded to Centered Pyrrolate Unit

Ken Okamoto, Takaki Kanbara, and Takakazu Yamamoto

Electronic Supporting Information
560 Polydiacetylene Supramolecules Embedded in PVA Film for Strip-type Chemosensors

Jong-Man Kim, Sang Kyun Chae, Young Bok Lee, Ji-Seok Lee, Gil Sun Lee, Tai-Young Kim, and Dong June Ahn

Electronic Supporting Information

562 Facile Synthesis of 4-Arylsulfanylcoumarin Library through Reaction of 4-Tosyloxycoumarins with Thiols on Solid Phase

Diversified 4-arylsulfanylcoumarins were generated under extremely mild conditions on solid phase with a silyl linker based macro-beads by base-promoted reaction of 4-tosyloxycoumarins with thiols.

Jie Wu

564 Fabrication of Non-woven Mats of Gelatin/Poly(l-lactic acid) Composites by Electrospinning and Their Application for Scaffold of Cell Proliferation

Young Sun Moon, Hiroshi Uyama, Sachiko Inoue, and Yasuhiko Tabata

566 N-Hydroxysuccinimide-promoted Oxidation of Primary Alcohols and Aldehydes to Form Active Esters with Hypervalent(III) Iodine

Naiwei Wang, Renhua Liu, Qing Xu, and Xinmiao Liang

Electronic Supporting Information

568 A Computational Study on Fluxional Behavior of Group 6 and 7 Transition-metal Complexes of Borane–Lewis Base Adducts

Yasuro Kawano, Taeko Kakizawa, Kazunori Yamaguchi, and Mamoru Shimoi

Site exchange of BH hydrogen atoms of the borane σ complexes proceeds via a transition state in which the borane ligand interacts with metal with a bidentate fashion.
570 Synthesis of Titanosilicate Zeolite from Bulk Titania via Mechanochemical Route

A new synthesis route for titanosilicate zeolites is successfully developed, in which silica–titania nanocomposite obtained through the mechanochemical reaction of bulk titania and silica is hydrothermally treated to give a titanosilicate zeolite.

Katsutoshi Yamamoto, Salomon E. Borjas Garcia, Fumio Saito, and Atsushi Muramatsu

572 Copper-catalyzed Selective Oxidation of Methane to Formaldehyde by Oxygen

Highly dispersed copper sites over SBA-15 catalyzed the formation of formaldehyde from methane oxidation with very high turnover frequency.

Yang Li, Shili Chen, Qinghong Zhang, and Ye Wang

574 Facile Synthesis of Cu2O Polyhedral Micro/Nanocrystals in Aqueous Solution of an Amphiphilic Polyvinylacetone

Cu2O polyhedral micro/nanocrystals were synthesized in aqueous solution of amphiphilic polyvinylacetone (PVKA) (ketalization degree DH = 0.549) under ambient conditions, via natural oxidation of copper metal by naturally dissolved oxygen in water.

Wei-Tai Wu, Lei Shi, Qingren Zhu, Yusong Wang, Guoyong Xu, Wenmin Pang, and Fei Lu

576 Electrolytic Treatment of Human Urine to Remove Nitrogen and Phosphorus

Nitrogen and phosphorus in human urine could be thoroughly removed by electrolytic treatment using an iron electrode when the total nitrogen was adjusted (diluted) to less than 1000 mg/L. The chemical oxygen demand (COD Mn) could also be reduced by 85%. The treatment would be able to suppress nitrogen and phosphorus levels in domestic wastewater to 20% and 50%, respectively. Using the treatment process mentioned in the present study, a dramatic reduction in the environmental impact of water contamination can be achieved by removing nitrogen and phosphorus from human urine.

Mineo Ikematsu, Kazuhiro Kaneda, Masahiro Iseki, Hidefumi Matsuura, and Masashi Yasuda

578 Synthesis of SnNb2O6 Nanoplates and Their Photocatalytic Properties

Yasuhiro Hosogi, Hideki Kato, and Akihiko Kudo
580 Ni/(Rare Earth Phosphate) as a New Effective Catalyst for Autothermal Reforming of Methane

Katsutoshi Nagaoka, Toshikazu Eiraku, Hiroyasu Nishiguchi, and Yusaku Takita

582 Patterned Metal Deposition on Si Based on Self-Assembly and Inkjet Printing

Jin-Yi Wang, Sheng-Juan Huo, Wen-Bin Cai, and Qun-Jie Xu

584 Regulation of Catalytic Activity of Peptide–Heme Conjugate by Conformational Change with Trifluoroethanol

Seiji Sakamoto, Hidekazu Fukushima, and Kazuaki Kudo

586 Effective Depolymerization Waste FRPs by Treatment with DMAP and Supercritical Alcohol

Akio Kamimura, Kazuo Yamada, Tomohiro Kuratani, Yohei Taguchi, and Fumiaki Tomonaga

588 Atrazine-imprinted Microspheres Prepared Using a Microfluidic Device

Asami Kubo, Hideyuki Shinmori, and Toshifumi Takeuchi
590 **Intramolecular Cyclization of Aminoalkynes Catalyzed by PdMo$_3$S$_4$ Cubane Clusters**

Izuru Takei, Yutaka Enta, Youhei Wakebe, Toshiaki Suzuki, and Masanobu Hidai

Electronic Supporting Information

592 **Development and Photovoltaic Performance of Oligothiophene-sensitized TiO$_2$ Solar Cells**

Koki Tanaka, Kazuo Takimiya, Tetsuo Otsubo, Koji Kawabuchi, Shotaro Kajihara, and Yutaka Harima

Electronic Supporting Information

594 **Site-specific Scission of Lambda Phage Genomic DNA by Ce(IV)/EDTA-based Artificial Restriction DNA Cutter**

Yoji Yamamoto, Kazuyuki Miura, and Makoto Komiyama

596 **Phenylene-bridged Polysilaalkane Macrocycles as Framed Molecular Rotor**

Wataru Setaka, Keisuke Sato, Atsushi Ohkubo, Chizuko Kabuto, and Mitsuo Kira

Electronic Supporting Information

598 **Photocontrol of ζ-Potential of Poly(styrene) Microspheres Prepared by Soap-free Emulsion Copolymerization**

Hiroaki Kishimoto, Masaru Watanabe, Tomokazu Iyoda, Katsutoshi Nagai, and Masaru Nakagawa
Observation of Ionic Liquid by Scanning Electron Microscope

It has been discovered that ionic liquid can be observed by a scanning electron microscope without accumulation of electron charges, allowing SEM observation of insulating specimens wetted with ionic liquid.

Susumu Kuwabata, Anusorn Kongkanand, Daisuke Oyamatsu, and Tsukasa Torimoto

One-step Synthesis of Partially Oxidized Cobalt(III) Phthalocyanine Salts with Axial Ligands

Derrick Etherbert C. Yu, Hiroyuki Imai, Mamoru Ushio, Sayaka Takeda, Toshio Naito, and Tamotsu Inabe

Electronic Supporting Information

Heterometallic Zn$_2$La and ZnLu Complexes Formed by Site-selective Transmetalation of a Dimeric Homotrinuclear Zinc(II) Complex

Shigehisa Akine, Takanori Taniguchi, and Tatsuya Nabeshima

Electronic Supporting Information

Formation of Acrolein in the Propane Oxidation over VTeO/SiO$_2$ Catalysts

C$_3$H$_8$ + O$_2$ $\xrightarrow{\text{VTeO/SiO}_2}$ CH$_2$=CHCHO

VTeO/SiO$_2$ catalyzed the oxidation of propane to acrolein with a maximal yield of 6.6% obtained at 520 °C. Their catalytically active sites were studied using allyl bromide and propene as molecular probes. The V$^{5+}$ sites were responsible for oxidative dehydrogenation of propane, whereas the Te$^{4+}$ sites for $\alpha$-H abstraction of propene and O-insertion of allyl species.

Chuanjing Huang, Yanxian Jin, Fang Ying, and Huilin Wan

Electronic Supporting Information

Chemical Coating of Aluminum Oxide onto As-synthesized Mesoporous Silicas

Yi-Shung Pan, Hong-Ping Lin, Hsu-Hsuan Cheng, Chi-Feng Cheng, Chih-Yuan Tang, and Ching-Yen Lin

Electronic Supporting Information
610 Extended Micro-Raman Densimeter for \( \text{CO}_2 \) Applicable to Mantle-originated Fluid Inclusions

Junji Yamamoto and Hiroyuki Kagi

612 Copper(II)-catalyzed O-Phenylation of Tertiary Alcohols with Organobismuth(V) Reagents

Kazuhiro Ikegai, Kentarou Fukumoto, and Teruaki Mukaiyama

614 4-(4-Pyridyl)benzoic Acid (PybenH) Dimer: An Efficient and Reasonable Design for a Long Linear Bidentate Building Block Employed in Metal–Organic Coordination Framework

Ryo Sekiya, Shin-ichi Nishikiori, and Katsuyuki Ogura

616 Photocatalytic Degradation of Formaldehyde and Toluene Mixtures in Air with a Nitrogen-doped TiO\(_2\) Photocatalyst

Koyu Aoki, Takeshi Morikawa, Takeshi Ohwaki, and Yasunori Taga

618 Synthesis of Multifunctional Nanocomposites Based on Highly Ordered Mesoporous Silica

Zhengyang Zhou, Shenmin Zhu, and Di Zhang
620 Photophysical Properties of 3-[2-Cyano-4-(dimethylamino)phenyl]alanine: A Highly Fluorescent and Environment-sensitive Amino Acid with Small Molecular Size

Juro Oshima, Hitomi Tsujimoto, Toshitada Yoshihara, Keiichi Yamada, Ryoichi Katakai, and Seiji Tobita

Electronic Supporting Information

622 Monodisperse Organosilica Microcapsules with Functional Groups by Self-catalysis

Bin Fei, Haifeng Lu, Rong Hua Wang, and John H. Xin

624 Adsorption Modification of Carboxylated Carbon Nanotubes with Aniline in Aqueous Solution

Citic acid can serve as super intermediate medium of the interaction between carboxylated carbon nanotubes and aniline. Higher temperature can promote the modified procedure significantly.

Xiaofeng Xie and Lian Gao

626 Synthesis of 1,3-Selenazines and 1,3-Selena-zolidines via Intramolecular Addition of N-Allylselenoureas

Mamoru Koketsu, Takashi Kiyokuni, Tsutomu Sakai, Hiromune Ando, and Hideharu Ishihara

628 Photochromism of Diarylethene-functionalized Polystyrene with High Conversion in a Solid-state Polymer Film

Seiya Kobatake and Hirotsugu Kuratani
630 Chemical Modification of SWCNT and VGCF by Radical Addition Reaction

\[ \text{SWCNT or VGCF} \quad R = \text{Me (AIBN)} \quad \text{CH}_2\text{CH}_2\text{COOH (ACVA)} \]

Takahiro Gunji, Minako Akazawa, Koji Arimitsu, and Yoshimoto Abe

Electronic Supporting Information

632 SnCl\textsubscript{2}·2H\textsubscript{2}O—An Alternative to Lewis Acidic Ionic Liquids

\[ \text{Molten SnCl}_2·2\text{H}_2\text{O} \]

Yield 97%

Pandurangan Arumugam and Paramasivan T. Perumal

Electronic Supporting Information

634 Organogel Formation by Self-assembly of Ag(I) and Mono-urea Derivatives Containing Pyridyl Group

Sadao Arai, Kanako Imazu, Shiho Kusuda, Isao Yoshihama, Masami Tonegawa, Yukihiro Nishimura, Kei-ichi Kitahara, Shigero Oishi, and Tetsuo Takemura

636 Simultaneous Synthesis and Self-assembly of Cyclic Diphenylalanine at Hydrothermal Condition

L-Phe molecules are high-efficiently reacted to cyclic dipeptides in subcritical water, and further the dipeptides self-assemble to unique morphologies.

Takanari Togashi, Mitsuo Umetsu, Hiroyuki Tsuchizaki, Satoshi Ohara, Takashi Naka, and Tadafumi Adschiri

638 Adsorption and Possible Luminescence Detection of Nonylphenol by Eu\textsuperscript{3+}–Smectites

4-Nonylphenol was effectively adsorbed on Eu\textsuperscript{3+}–montmorillonite and luminescence bands of Eu\textsuperscript{3+} appeared by the excitation of the adsorbed 4-nonylphenol.

Tomohiko Okada, Yusuke Ehara, and Makoto Ogawa
640 Construction of a Fuel Cell from Proton-conducting Silica Nanofilm

A fuel cell using a proton-conducting porous silica film with thickness of 650 nm has been constructed.

[Diagram of fuel cell components: Anode Pt layer, Silica Nanofilm, VYCOR® glass, Cathode PtPd layer]

Haibin Li and Toyoki Kunitake

642 Degradation of 2,4-Dichlorophenoxyacetic Acid (2,4-D) by Cobalt-60 Gamma Radiation in a Methanolic Solution Containing Humic Acid

The effect of γ-radiation was studied in a solution composed of humic acid, methanol and 2,4-D herbicide. One toxic degradation product (3-chlorophenol) was identified and total degradation of 2,4-D was achieved in 150 kGy dose.

Sandro X. Campos and Eny M. Vieira

644 A Route to Redox-active Nanoparticle-cored Dendrimers: Post-encapsulation of Ferrocene

Redox-active nanoparticle-cored dendrimers were synthesized by a stepwise reaction, which synthesis of functionalized nanoparticles was followed by organic reactions to build dendritic architecture and to incorporate redox molecules.

Young-Seok Shon and Daeock Choi

646 Heating Effect of Plasma Catalytic Reaction on the CH₄ Reforming of CO₂ over Ni/γ-Al₂O₃ Catalyst in Dielectric-barrier Discharge Reactor

Hwaung Lee, Hyung Keun Song, and Byoung Ryul Min

648 A Simple Way for Preparing Antioxidation Nano-copper Powders

A two-step reduction route in polyol process for producing copper nanoparticles with satisfied antioxidation property is described here. This process involves two-step reduction of copper salts in polyol solution with the surfactant protection under atmospheric conditions at a temperature below 353 K. Well-dispersed nano-copper particles with c.a. 80 nm in diameter were obtained from the diethylene glycol (DEG) solution containing 0.2 M Cu²⁺ ion, 0.3 mM PVP as a ligand agent at 330 K, glucose as first reductant, and ascorbic acid as second reductant.

Jian-guang Yang, Takeshi Okamoto, Ryoichi Ichino, Takeshi Bessho, Shigeru Satake, and Masazumi Okido
650 Synthesis, Crystal Structure, and Optical Limiting Effect of a Cu(I) Coordination Polymeric Cluster Bridged by Chiral-carbon Skeleton Bipyridyl Ligand

Yunyin Niu, Yinglin Song, Qingli Wang, Xiaoling Guo, Yu Zhu, and Hongwei Hou

Electronic Supporting Information

652 Synthesis and Liquid-crystalline Properties of Bromoalkyloxy-substituted Terphenylenes

These substituted terphenylenes exhibit tilted mesophases: SmC, SmF/I, and SmX.

Leticia Larios-López, Dámaso Navarro-Rodríguez, Bertrand Donnio, and Daniel Guillon

Electronic Supporting Information

654 A Series of Polymorphs with Different Colors in Fluorescent 2,5-Diamino-3,6-dicyanopyrazine Dyes

Color difference of polymorphs in 2,5-diamino-3,6-dicyanopyrazine dyes was found to be caused by conformational change in the crystals, not by exciton interactions.

Shinya Matsumoto, Yoko Uchida, and Mitsuhiro Yanagita

Electronic Supporting Information

656 An Effective Route for Porous Ferrihydrite Preparation from Layered Double Hydroxide Precursors

Cycle performance of the ferrihydrite cathode from layered double hydroxide.

Wei Xia, Weiqing Meng, Ranbo Yu, Xianran Xing, Dan Wang, Yunfa Chen, and Mikio Takano

Electronic Supporting Information

658 Multiplex Gene Mutation Analysis Using Affinity Capillary Electrophoresis in a Single Microfluidic Channel

Akira Inoue, Toshiyuki Ito, Kae Sato, Kazuo Hosokawa, Kimiko Makino, and Mizuo Maeda

Electronic Supporting Information
660 Pyrene-modified DNA Aptamer as a Fluorescent Biosensor with High Affinity and Specificity for ATP Sensing

Nobuyuki Kamekawa, Yukinori Shimomura, Mitsunobu Nakamura, and Kazushige Yamana

662 Enhancement of Singlet Oxygen Sensitization of Tetraphenylporphyrin by Silylation

Hiroaki Horiuchi, Toru Tanaka, Kimio Yoshimura, Kenta Sato, Soichiro Kyushin, Hideyuki Matsumoto, and Hiroshi Hiratsuka

664 Oxygen Atom Transfer Catalytic Property of Oxo-rhenium(V) Complex with 2-Methylquinolin-8-ylamide and Tetrachlorocatecholate

Tetuya Ohashi, Yoshitaro Miyashita, Kiyoshi Fujisawa, and Ken-ichi Okamoto

Electronic Supporting Information

666 Dye Sensitization of ZnO by Unsymmetrical Squaraine Dyes Suppressing Aggregation

Atsuhiro Otsuka, Kazumasa Funabiki, Naoyuki Sugiyama, Tsukasa Yoshida, Hideki Minoura, and Masaki Matsui

Electronic Supporting Information

668 Synthesis and Photovoltaic Properties of Tetrathiafulvalene–Oligothiophene–Fullerene Triads

Hiroki Kanato, Masashi Narutaki, Kazuo Takimiya, Tetsuo Otsubo, and Yutaka Harima

Electronic Supporting Information
A Facile Route to Prepare Mesoporous Anatase TiO$_2$ Nanotube Assembly

Wugang Fan and Lian Gao

Synthesis of Gallium-sodalite from a Layered Silicate with a Half Cup-type Sodalite Cage Structure

Yoshimichi Kiyozumi, Takuji Ikeda, Yasuhisa Hasegawa, Takako Nagase, and Fujio Mizukami

Preparation of a Lithium Ion Conductor through Polyethylene Glycol and LiSO$_3$CF$_3$ Sorption in Zeolite

Weiping Tang, Yoshiaki Ogo, Noriko Minamimoto, and Mitsunobu Takeoka

K$_5$[W$_4$O$_8$(H$_2$BO$_4$)(HPO$_4$)$_2$(PO$_4$)$_2$]·0.5H$_2$O: A Tungsten Borophosphate with a Novel Sandwich-like Layered Structure

Shao-Yu Mao, You-Jun Kang, Wei Liu, Jin-Xiao Mi, and Jing-Tai Zhao

Electronic Supporting Information

A Novel Receptor-based Surface-plasmon-resonance Affinity Biosensor for Highly Sensitive and Selective Detection of Dopamine

Sunita Kumbhat, Dhesingh Ravi Shankaran, Sook Jin Kim, K. Vengatajalabathy Gobi, Vinod Joshi, and Norio Miura

Natural receptors are attractive choice for use as biorecognition elements in sensor technology owing to their excellent affinity and specificity towards the target analytes. We have established a novel affinity biosensor for dopamine using a D3 dopamine receptor as a biorecognition element. The proposed SPR-based affinity biosensor is new and promising for sensitive and selective detection of dopamine in its active biochemical constitution.
680 **Structure and Electrochemical Capacitance of Nitrogen-enriched Mesoporous Carbon**

Nitrogen-enriched mesoporous carbon has been prepared from quinoline-polymerized pitch using mesoporous silica as a template. The structural investigation of obtained carbons revealed the mesoporous characteristics of template carbons. Moreover, the carbon indicated a high capacitance amounting to 200–300 F/g in 1 M H₂SO₄ electrolyte.

Masaya Kodama, Junya Yamashita, Yasushi Soneda, Hiroaki Hatori, Katsumi Kamegawa, and Isamu Moriguchi

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682 **Synthesis of β-Amino Ketones by Iridium(III)-catalyzed Direct-Mannich Reaction**

\[
\text{O} + R^2\text{CHO} + \text{NH}_2 R^3 \xrightarrow{[\text{IrCl}_2(\text{H})(\text{cod})]_2 (5.0 \text{ mol \%})} \xrightarrow{\text{DMSO, rt}} \text{O} \text{HN} R^1 R^2
\]

Shunsuke Sueki, Takeyuki Igarashi, Takayuki Nakajima, and Isao Shimizu

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684 **Construction of Three-dimensional Framework with 1,8-Anthrylene and Butadiynylene Building Units: Synthesis and Properties of Cyclic Tetramers**

The cyclic structure was constructed by metal-catalyzed oxidative coupling reactions.

Michio Goichi and Shinji Toyota