

## JOURNAL OF THE CHEMICAL SOCIETY

**Perkin Transactions 1**

## Organic and Bio-organic Chemistry

---

**CONTENTS**

---

- 2627 Anthracyclinones. Part 5. Synthesis of some anthracyclinones and 4-hydroxyanthracyclinones containing a tertiary methyl carbinol function in ring A from D-glucose precursors **Zulficar Ali, Shireen Qureshi, Gordon Shaw and Erik de Clercq**
- 2637 Constituents of 'Dragon's blood.' Part 4. Dracoflavan A, a novel secotriflavanoid **Alberto Arnone, Gianluca Nasini and Lucio Merlini**
- 2641 Synthesis of [D-Ala<sup>2</sup>]Leu-enkephalin and [D-Ala<sup>2</sup>, D-Leu<sup>5</sup>]Leu-enkephalin with high specific tritiated activity in the leucine residue **Hiroshi Hasegawa, Yoshihiko Shinohara and Shigeo Baba**
- 2645 Vinyl cation formation by decomposition of vinyl-lead triacetates. The reactions of vinylmercury and vinyltin compounds with lead tetra-acetate **Mark G. Moloney, John T. Pinhey and Martin J. Stoermer**
- 2657 A very short route to fully aromatic 2,3,8,9- and 2,3,8,9,12-oxygenated benzo[c]phenanthridines **Tiwalade A. Olugbade, Roger D. Waigh and Simon P. Mackay**
- 2661 The influence of a 15-hydroxy group on the rearrangement reactions of steviol and its 16,17-epoxide **Anthony G. Avent, James R. Hanson, Peter B. Hitchcock and Bras Heleno De Oliveira**
- 2667 1:3-Rearrangement of steroid allylic acetoxy groups during epoxidation **Nazar Flah and James R. Hanson**
- 2671 Biosynthesis of mangostin. Part 1. The origin of the xanthone skeleton **Graham J. Bennett, Hiok-Huang Lee and Nagaratnam P. Das**
- 2677 An enantiocontrolled synthesis of (−)-malyngolide **Toshio Honda, Minako Imai, Katsuyuki Keino and Masayoshi Tsubuki**
- 2681 Differential reactivity of β-amino enones and 3-dimethylaminoacrylaldehyde towards α-amino derivatives **Angel Alberola, José M. Andrés, Alfonso González, Rafael Pedrosa and Martina Vicente**
- 2687 Oxygenation of 2,6-di-t-butylphenol catalysed by a new cobalt(II) complex [Co(babp)]: a salen analogue having higher catalytic activity, selectivity and durability **Masaki Yamada, Koji Araki and Shinsaku Shiraishi**
- 2691 Cobalt-mediated radical reactions in organic synthesis. Oxidative cyclisations of aryl and alkyl halides leading to functionalised reduced heterocycles and butyrolactones **Harcharan Bhandal, Vinod F. Patel, Gerald Pattenden and Jamie J. Russell**
- 2703 Free radical reactions in synthesis. Homolysis of alkylcobalt complexes in the presence of radical-trapping agents **Vinod F. Patel and Gerald Pattenden**
- 2709 Cobalt-mediated intermolecular radical additions to carbon-to-carbon double bonds leading to new functionalised alkenes **Harcharan Bhandal, Amy R. Howell, Vinod F. Patel and Gerald Pattenden**
- 2715 Hydrocobalatation reactions of 1,3-dienes. Regioselective hydroxylation of myrcene to geraniol and to (±)-linalool via allylcobaloxime intermediates **Amy R. Howell and Gerald Pattenden**
- 2721 Acylcobalt salophen reagents. Precursors to acyl radical intermediates for use in carbon-to-carbon bond-forming reactions to alkenes **Donal J. Coveney, Vinod F. Patel, Gerald Pattenden and David M. Thompson**
- 2729 Cobalt-mediated reactions in synthesis. The degradation of carboxylic acids to functionalised noralkanes via acylcobalt salophen intermediates **Vinod F. Patel, Gerald Pattenden and David M. Thompson**

- 2735 Oenothein B, a dimeric, hydrolysable tannin with macrocyclic structure and accompanying tannins from *Oenothera erythrosepala* **Tsutomu Hatano, Taeko Yasuhara, Muneto Matsuda, Kazufumi Yazaki, Takashi Yoshida and Takuo Okuda**
- 2745 Synthesis of [19- $^2\text{H}_3$ ]progesterone and [18- $^2\text{H}_3$ ]progesterone **David N. Kirk, Carmen Z. Smith, Michael J. Varley and John W. Honour**
- 2749 Cycloadditions with 1-phenyl-5-vinylpyrazole **Mercedes Medio-Simón, M. José Alvarez de Laviada and José Seqúlveda-Arques**
- 2751 Investigation of the biosynthesis of 3 $\alpha$ -hydroxy-triterpenoids, ganoderic acids T and S, by application of a feeding experiment using [1,2- $^{13}\text{C}_2$ ]acetate **Masao Hirotani, Isao Asaka and Tsutomu Furuya**
- 2755 Enzymatic cyclizations mediated by ultrasonically stimulated baker's yeast: synthesis of imidazo-fused heterocycles **Ahmed Kamal, Maddamsetty V. Rao and Adari B. Rao**
- 2759 Enantioconvergent synthesis of (–)-3-methyl-3-phenylcyclopentanone **Milind M. Gharpure and A. S. Rao**
- 2763 Synthesis of per-*O*-alkylated 5-thio-D-glucono-1,5-lactones and transannular participation of the ring sulphur atom of 5-thio-D-glucose derivatives on solvolysis under acidic conditions **Hideya Yuasa, Jun-ichi Tamura and Hironobu Hashimoto**
- 2771 Homochiral syntheses of (–)-dihydrocorynantheol **Masataka Ihara, Nobuaki Taniguchi, Ken Yasui and Keiichiro Fukumoto**
- 2775 Approaches to 2,6-diaryl-3,7-dioxabicyclo[3.3.0]octane lignans via asymmetric synthesis of dihydro- and tetrahydro-furan derivatives **Andrew Pelter, Robert S. Ward and Gillian M. Little**
- 2791 Characterization of light-harvesting pigments of *Chloroflexus aurantiacus*. Two new chlorophylls: oleyl (octadec-9-enyl) and cetyl (hexadecanyl) bacteriochlorophyllides-*c* **Frédéric Fages, Nils Griebenow, Kai Griebenow, Alfred R. Holzwarth and Kurt Schaffner**
- 2799 Thermal and photochemical reactions of  $\eta^5$ -cyclopentadienyl(naphthoyl)(dicarbonyl)iron complexes with alkynes: formation of benzindenones and dihydropentalenones **Ian R. Butler, Jean-Pierre Charland, Joanne L. Elliot, Jean Houde, W. Edward Lindsell, Kevin J. McCullough, Peter N. Preston and Alan B. Rettie**
- 2807 An efficient method for the copper(II)-promoted stereoselective iodofunctionalization of alkenes **José Barluenga, Miguel A. Rodríguez and Pedro J. Campos**
- 2811 A convenient one-pot synthesis of 4-methoxyalka-2,4-dienoates **Ewan F. Birse, Michael D. Ironside, Leslie McQuire and Alistair W. Murray**
- 2821 The bromination of some  $\beta$ -norandrost-5-enes. X-Ray molecular structure of 17 $\beta$ -acetoxy-4 $\beta$ ,6 $\alpha$ -dibromo-5 $\beta$ -methyl-7,19-dinorandrost-9(10)-ene **James R. Hanson, Peter B. Hitchcock and Vasuki Thangavelu**
- 2825 Photoinduced molecular transformations. Part 113. One-step transformations of cyclic ethers into  $\omega$ -iodoalkyl formates and of aldehyde cyclic acetals into monoesters of  $\alpha,\omega$ -alkanediols by iodoxy radical **Hiroshi Sugimoto and Jian Bo Wang**
- 2831 Phosphorylated sugars. Part 26. Synthesis of 3-deoxy-D-manno-oct-2-ulosonic acid 7-phosphate **France-Isabelle Auzanneau, Daniel Charon and Ladislás Szabó**
- 2835 Ring expansion of cyclopropylmethanols to cyclobutanes—an enantioselective total synthesis of (*R*)-(+)dodecan-5-olide, and (*S*)-(+)- and (*R*)-(–)-5-[*Z*]-dec-1-enyl)dihydrofuran-2(3*H*)-one **Hideo Nemoto, Hiroki Ishibashi, Masahiko Mori, Shigekazu Fujita and Keiichiro Fukumoto**
- 2841 Isolation and structure of vaalens-1, -3, -5 and -7. Sesquiterpene esters of *Catha transvaalensis* Codd (Celastraceae): X-ray molecular structure of vaalens-5 **Michael J. Begley, Leslie Crombie, W. Mary L. Crombie, Dane Toplis and Donald A. Whiting**

## Perkin Communications

- 
- 2847 Formation of secondary alcohols from the reaction of trimethyl- and methyldiphenyl-telluronium salts with aldehydes by use of organolithium reagents **Li-Lan Shi, Zhang-Lin Zhou and Yao-Zeng Huang**
- 2848 A general synthesis of 2-alkyl(aryl)-4-morpholinopyridines **Mark A. Armitage and Michael B. Mitchell**
- 2849 Absolute configuration and synthesis of the liverwort sesquiterpene alcohol tamariscol **Motoo Tori, Masakazu Sono and Yoshinori Asakawa**
- 2851 A new approach to neoflavanoid synthesis **Derville M. X. Donnelly, Jean-Pierre Finet, Patrick J. Guiry and Rhona M. Hutchinson**
- 2852 Inclusion complexes of a new host, 4,5-bis(4-methoxyphenyl)-2-(4-nitrophenyl)-1*H*-imidazole, with various guests **Yoshiko Sakaino, Ryouko Fujii and Takaji Fujiwara**
- 2854 Site selective oxidation of some azaspiroundecanes using *Beauvaria sulfurescens* ATCC 7159 **William Carruthers, Jeremy D. Prail, Stanley M. Roberts and Andrew J. Willetts**

CONTENTS

- 2856 Oxidative ring contraction of the phytoalexin cyclobrassinin: a way to brassilexin **Michel Devys and Michel Barbier**  
2857 Stereoselective synthesis of either ( $\pm$ )-*exo*- or ( $\pm$ )-*endo*-brevicomin *via* hydride reduction of a 2-acylpyranyl intermediate **David P. Richardson, Whitney Wilson, Rebecca J. Mattson and Dawn M. Powers**

Corrigendum

---

- 2861 A novel probe for free radicals featuring epoxide cleavage **Julia M. Dickinson, John A. Murphy, Christopher W. Patterson and Nicholas F. Wooster**

## AUTHOR INDEX

- Alberola, Angel, 2681  
Ali, Zulfiqar, 2627  
Andrés, José M., 2681  
Araki, Koji, 2687  
Armitage, Mark A., 2848  
Arnone, Alberto, 2637  
Asaka, Isao, 2751  
Asakawa, Yoshinori, 2849  
Auzanneau, France-Isabelle,  
  2831  
Avent, Anthony G., 2661  
Baba, Shigeo, 2641  
Barbier, Michel, 2856  
Barluenga, José, 2807  
Begley, Michael J., 2841  
Bennett, Graham J., 2671  
Bhandal, Harcharan, 2691, 2709  
Birse, Ewan F., 2811  
Butler, Ian R., 2799  
Campos, Pedro J., 2807  
Carruthers, William, 2854  
Charland, Jean-Pierre, 2799  
Charon, Daniel, 2831  
Coveney, Donal J., 2721  
Crombie, Leslie, 2841  
Crombie, W. Mary L., 2841  
Das, Nagaratnam P., 2671  
de Clercq, Erik, 2627  
de Laviada, M. José Alvarez,  
  2749  
De Oliviera, Bras Heleno, 2661  
Devys, Michel, 2856  
Dickinson, Julia M., 2861  
Donnelly, Derville M. X., 2851  
Elliot, Joanne L., 2799  
Fages, Frédéric, 2791  
Finet, Jean-Pierre, 2851
- Flaib, Nazar, 2667  
Fujii, Ryouko, 2853  
Fujita, Shigekazu, 2835  
Fujiwara, Takaji, 2853  
Fukumoto, Keiichiro, 2771,  
  2835  
Furuya, Tsutomu, 2751  
Gharpure, Milind M., 2759  
González, Alfonso, 2681  
Griebenow, Kai, 2791  
Griebenow, Nils, 2791  
Guiry, Patrick J., 2851  
Hanson, James R., 2661, 2667,  
  2821  
Hasegawa, Hiroshi, 2641  
Hashimoto, Hironobu, 2763  
Hatano, Tsutomu, 2735  
Hirotani, Masao, 2751  
Hitchcock, Peter B., 2661, 2821  
Holzwarth, Alfred R., 2791  
Honda, Toshio, 2677  
Honour, John W., 2745  
Houde, Jean, 2799  
Howell, Amy R., 2709, 2715  
Huang, Yao-Zeng, 2847  
Hutchinson, Rhona M., 2851  
Ihara, Masataka, 2771  
Imai, Minako, 2677  
Ironside, Michael D., 2811  
Ishibashi, Hiroki, 2835  
Kamal, Ahmed, 2755  
Keino, Katsuyuki, 2677  
Kirk, David N., 2745  
Lee, Hiok-Huang, 2671  
Lindsell, W. Edward, 2799  
Little, Gillian M., 2775  
Mackay, Simon P., 2657
- Matsuda, Muneto, 2735  
Mattson, Rebecca J., 2857  
McCullough, Kevin J., 2799  
McQuire, Leslie, 2811  
Medio-Simón, Mercedes, 2749  
Merlini, Lucio, 2637  
Mitchell, Michael B., 2848  
Moloney, Mark G., 2645  
Mori, Masahiko, 2835  
Murphy, John A., 2861  
Murray, Alistair W., 2811  
Nasini, Gianluca, 2637  
Nemoto, Hideo, 2835  
Okuda, Takuo, 2735  
Olugbade, Tiwalade A., 2657  
Patel, Vinod F., 2691, 2703,  
  2709, 2721, 2729  
Pattenden, Gerald, 2691, 2703,  
  2709, 2715, 2721, 2729  
Patterson, Christopher W., 2861  
Pedrosa, Rafael, 2681  
Pelter, Andrew, 2775  
Pinhey, John T., 2645  
Powers, Dawn M., 2857  
Prail, Jeremy D., 2854  
Preston, Peter N., 2799  
Qureshi, Shireen, 2627  
Rao, A. S., 2759  
Rao, Adari B., 2755  
Rao, Maddamsetty V., 2755  
Rettie, Alan B., 2799  
Richardson, David P., 2857  
Roberts, Stanley M., 2854  
Rodríguez, Miguel A., 2807  
Russell, Jamie J., 2691  
Sakaino, Yoshiko, 2852  
Schaffner, Kurt, 2791
- Séjúlveda-Arques, José, 2749  
Shaw, Gordon, 2627  
Shi, Li-Lan, 2847  
Shinohara, Yoshihiko, 2641  
Shiraishi, Shinsaku, 2687  
Smith, Carmen Z., 2745  
Sono, Masakazu, 2849  
Stoermer, Martin J., 2645  
Suginome, Hiroshi, 2825  
Szabó, Ladislás, 2831  
Tamura, Jun-ichi, 2763  
Taniguchi, Nobuaki, 2771  
Thanganavelu, Vasuki, 2821  
Thompson, David M., 2721,  
  2729  
Toplis, Dane, 2841  
Tori, Motoo, 2849  
Tsubuki, Masayoshi, 2677  
Varley, Michael J., 2745  
Vicente, Martina, 2681  
Waigh, Roger D., 2657  
Wang, Jian Bo, 2825  
Ward, Robert S., 2775  
Whiting, Donald A., 2841  
Willets, Andrew J., 2854  
Wilson, Whitney, 2857  
Wooster, Nicholas F., 2861  
Yamada, Masaki, 2687  
Yasuhara, Taeko, 2735  
Yasui, Ken, 2771  
Yazaki, Kazufumi, 2735  
Yoshida, Takashi, 2735  
Yuasa, Hideya, 2763  
Zhou, Zhang-Lin, 2847

## Perkin Prizes

As part of the proceedings to mark the 150th anniversary of the Royal Society of Chemistry, four prizes each of £150 will be given to the senior author of articles that are judged to be the best full papers published in the journals *Perkin Transactions 1* and *Perkin Transactions 2* during 1991. The judgement will be made by the Perkin Editorial Board which will take advice from the Perkin panel of referees; an announcement of the prize-winners will be made in the April 1992 issue of the two journals. Persons wishing to submit articles for publication during 1991 should note that papers take 5–6 months to publish from the date of receipt.

---

NOTE: An asterisk in the heading of each paper indicates the author who is  
to receive any correspondence.