Synthesis and Antioxidant and Antitumor Activity of Novel Pyridine, Chromene, Thiophene and Thiazole Derivatives

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Abstract

2-Tosylacetonitrile (1) when reacted with a,beta-unsaturated nitriles 2ac or a mixture of formaldehyde and 3-amino-2-substituted-pent-2-endinitriles 6a,b yielded pyridine derivatives 3ac and 9a,b, respectively, while when subjected to react with salicylaldehyde yielded chromene derivatives 4 and 5, subsequently. The behavior of thiocarbamoyl derivative 10 derived from 1 towards some a-halogenated compounds have been investigated as well as its behavior towards elemental sulfur and phenyl isothiocyanate. Newly synthesized compounds were screened for their antioxidant activity, erythrocytes haemolysis and bleomycin-independent DNA damage. Some of the tested compounds exhibited promising activities.

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Synthesis of Some New Naphthopyran, Pyrazole, Pyridine, and Thienobenzochromene Derivatives Using 1-(1-Hydroxy-2-naphthyl) Ethanone as a Versatile Starting Material

Badawy, DS (Badawy, Doria S.) \(^1\); Kandeel, EM (Kandeel, E. M.) \(^1\); Awad, NM (Awad, Noha M.) \(^1\); Abdel-Rahman, ARH (Abdel-Rahman, Abdel-Rahman H.) \(^1\)

Abstract

Treatment of the enaminone 2, prepared from 1-(1-hydroxy-2-naphthyl)ethanone 1 and N,N-dimethylformamide dimethylacetal with acetic acid, thionyl chloride, or bromine, gave the corresponding 4-oxo-4H-naphtho[1,2-b]pyran derivatives 3, 4, and 5. Refluxing of p-toluidine or p-anisidine with 2 afforded compounds 6 and 7, respectively. The naphtho[1,2-b]pyran-3-carbaldehyde 9 was prepared via the acetylation of 2. Condensation of 9 with malononitrile or ethyl cyanoacetate gave the pyridine derivatives 10 and 11. Refluxing of 9 with hydrazine hydrate, phenylhydrazine, semicarbazide hydrochloride, or thiosemicarbazide afforded the pyrazole derivatives 12, 13, 14, and 15 respectively. Reaction of ethanone 1 with malononitrile gave the chromene carbonitrile derivative 16. Treatment of 16 with malononitrile afforded the chromene malononitrile derivative 17. Also, compound 17 was obtained from the reaction of 1 with excess of malononitrile and catalytic piperidine. Treatment of 16 with ethyl cyanoacetate produced compound 18. When 16 was treated with elemental sulfur, theinobenzochromene derivative 19 was produced. Hydrolysis of 16 with hydrochloric acid yielded the benzochromene carbonitrile derivative 20 which on heating with elemental sulfur afforded the theinobenzochromene derivative 21. Treatment of 21 with acetic anhydride, p-chlorobenzaldehyde, phenyl isothiocyanate, or thionylchloride furnished compounds 22, 23, 24, and 25, respectively.

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Author Keywords: Naphtho[1,2-b]pyran; naphtho[1,2-b] pyran-3-carbaldehyde; thienobenzochromene

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Author(s): ELNASER, H; GHAFFAR, EA; MAHMOUD, SS
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Author(s): ZOHAIR MMY

Source: EGYPT J CHEM Volume: 27 Pages: 399 Published: 1985
One-Pot Three-Component Synthesis of beta-Acylaminoketones Containing a Thiophene Ring by the Use of Tetrachlorosilane-Zinc Chloride as a Binary Reagent Under Ambient Conditions

Badawy, DS (Badawy, Doria S.)¹ [1]; Abdel-Galil, E (Abdel-Galil, Ebrahim)¹ [1]; Kandeel, EM (Kandeel, E. M.)¹ [1]; Basyouni, WM (Basyouni, Wahid M.)² [1]; El-Bayouki, KAM (El-Bayouki, Khairy A. M.)² [1]; Khatab, TK (Khatab, Tamer K.)² [1]

Abstract

A new route for the synthesis of  \(-\)acylaminoketones containing a thiophene ring through multicomponent condensation reaction of different ketones, different aldehydes, and different nitriles with tetrachlorosilane (TCS) and zinc chloride as the binary reagent is described.

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Author Keywords: beta-Acylaminoketones; binary reagent; tetrachlorosilane; thiophene

KeyWords Plus: DAKIN-WEST REACTION; ENVIRONMENTALLY FRIENDLY METHOD; LEWIS-BASE ACTIVATION; ACETAMIDO KETONES; ENANTIOSELECTIVE ADDITION; MULTICOMPONENT SYNTHESIS; 1,3-AMINO ALCOHOLS; CONVENIENT METHOD; LIBRARY SYNTHESIS; SECONDARY AMIDES

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Web of Science Categories: Chemistry, Inorganic & Nuclear; Chemistry, Organic

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Author(s): Bahulayan, D; Das, SK; Iqbal, J


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Author(s): ELMORSY, SS; NOUR, MA; KANDEEL, EM; et al.

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Author(s): Khodaei, MM; Khosropour, AR; Kookhazadeh, M


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Tetrachlorosilane-Zinc Chloride as a New Potent Binary Reagent for One-Pot, Three-Component Synthesis of Mannich-Type Products

Badawy, DS (Badawy, Doria S.)\textsuperscript{[1]}; Abdel-Galil, E (Abdel-Galil, Ebrahim)\textsuperscript{[1]}; Kandeel, EM (Kandeel, Ezzat M.)\textsuperscript{[1]}; Basyouni, WM (Basyouni, Wahid M.)\textsuperscript{[2]}; Khatab, TK (Khatab, Tamer K.)\textsuperscript{[2]}

Abstract

A combination of tetrachlorosilane and zinc chloride in dichloromethane as an efficient and ambient binary reagent to promote a one-pot amidoalkylation reaction of enolizable ketones, aromatic aldehydes with acetonitriles, or benzonitrile have been developed. The newly synthesized beta-acetamidoketones 3 and beta-benzamidoketones 5 were obtained in good yields.

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KeyWords Plus: BETA-ACETAMIDO KETONES; DAKIN-WEST REACTION; AMINO ACID-DERIVATIVES; SILICA SULFURIC-ACID; MULTICOMPONENT SYNTHESIS; TETRAZOLE DERIVATIVES; CONDENSATION REACTION; CARBONYL-COMPOUNDS; CONVENIENT METHOD; SECONDARY AMIDES

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Author(s): Badawy, Doria S.; Abdel-Galil, Ebrahim; Kandeel, E. M.; et al.
2. Title: Montmorillonite K10 clay: An efficient catalyst for the one-pot stereoselective synthesis of beta-acetanxido ketones

Author(s): Bahulayan, D; Das, SK; Iqbal, J


3. Title: A novel highly selective chiral auxiliary for the asymmetric synthesis of L- and D-alpha-amino acid derivatives via a multicomponent Ugi reaction

Author(s): Basso, A; Banfi, L; Riva, R; et al.

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Author(s): Beck, B; Hess, S; Domling, A

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Author(s): BELYAEV, VF

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Author(s): BHATIA, B; REDDY, MM; IQBAL, J


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Author(s): BRAUDE EA

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Author(s): BUCHANAN, GL


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Author(s): Dahn, U.; Hagenmaier, H.; Hohne, H.; et al; Konig, W.A.; Wolf, G.; Zohner, H.


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Author(s): Dakin, HD; West, R

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Author(s): El-Ahl, AAS; Elmorsy, SS; Elbeheery, AH; et al.

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Author(s): Elmorsy, Saad S.; Badawy, Doria S.; Khatab, Tamer K.


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Author(s): ELMORSY, SS; EIAHL, AAS; SOLIMAN, H; et al.

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Author(s): Fayol, A; Zhu, JP

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Author(s): Ghosh, R; Maiti, S; Chakraborty, A


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Author(s): Gupta, HK; Reginato, N; Ogini, FO; et al.

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Author(s): HAYASHI, M; INUBUSHI, A; MUKAIYAMA, T

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Author(s): Portlock, DE; Naskar, D; West, L; et al.

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Author(s): Salama, TA; El-Ahl, AAS; Khalil, AGM; et al.

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Author(s): Shaterian, Hamid Reza; Yarahmadi, Hossein; Ghashang, Majid

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Author(s): STERCKER A

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Author(s): Yakaiah, T; Reddy, GV; Lingaiah, BPV; et al.

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Author(s): Yakaiah, T.; Lingaiah, B. P. V.; Reddy, G. Venkat; et al.

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Publisher: BLACKWELL SCIENCE PUBL, OSNEY MEAD, OXFORD OX2 0EL, ENGLAND
Chemoselective bromination in a two-step substitution under the influence of tetrachlorosilane and N-bromosuccinimide

Elmorsy, SS (Elmorsy, Saad S.); Badawy, DS (Badawy, Doria S.);
Khatab, TK (Khatab, Tamer K.)

Abstract

The synthesis of gem dibromide carbonyl compounds via a cheap and readily available combined reagent from tetrachlorosilane and N-bromosuccinimide (TCS-NBS).


KeyWords Plus: CHLOROSUCCINIMIDE; HALOGENATIONS

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Research Areas: Chemistry

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Author(s): BAILEY, WJ; BELLO, J

Source: JOURNAL OF ORGANIC CHEMISTRY Volume: 20 Issue: 4 Pages: 525-529 DOI: 10.1021/jo01122a015 Published: 1955

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Author(s): BOVONSOMBAT, P; MCNELIS, E

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Author(s): BUCKLES, RE; JOHNSON, RC; PROBST, WJ

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Author(s): COREY, EJ; FUCHS, PL

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Author(s): DAUBEN, HJ; MCCOY, LL

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Author(s): LARRY DB
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