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A trend in the Chemistry of Ketengem-Dithiol Reaction and transformations

Salem E. Zayed, Awatef M. El Maghraby, Entesar A. Hassan and Hadir M. Mostafa

South Valley University, Egypt

Abstract

Acid catalyzed reaction of 1-(1H-indol-3-yl)-3,3-dimercaptoprop-2-en-1-one (1) with anthranilic acid (2) was achieved to produce 2-(1*H*-indol-3-yl)-4-oxo-1,4-dihydroquinoline-3-carbodithioic acid (3). Reactions of (1) with some amines e.g. p-chloroaniline (4) and o-aminophenol (5) in equimolar ratios and different reaction conditions were explored to produce (*E*)-3-((4-chlorophenyl)imino)-3-(1*H*-indol-3-yl)prop-1-ene-1,1-dithiol (6) and (*E*)-2-(benzo[d]oxazol-2(3*H*)-ylidene)-1-(1*H*-indol-3-yl)ethan-1-one (7) respectively. While reaction of (1) with 3,5-dibromosalicyldehyde (8) or glucose (9), (6,8-dibromo-4-hydroxy-2-mercaptochroman-3-yl)(1*H*-indol-3-yl)methanone (10) and 2-(dimercaptomethylene)-3,4,5,6,7,8-hexahydroxy-1-(1*H*-indol-3-yl)octan-1-one (11) were obtained respectively. Also 5-(1H-indol-3-yl)-3H-1,2-dithiole-3-thione (12) was obtained from the reaction of (1) with P_2S_5. On treatment (12) with different reagents as 3,5-dibromosalicyldehyde (8) and anthranilic acid (2) gave the adducts 6,8-dibromo-3-(1*H*-indol-3-yl)-9a-mercapto-3*H*,9aH-[1,2]dithiolo[3,4-b]chromen-4-ol (13) and 3-(1*H*-indol-3-yl)-9a-mercapto-9,9a-dihydro-4*H*-[1,2]dithiolo[3,4-b]quinolin-4-one (14) respectively.

Biography:

Salem E. Zayed Is a Lecturer at University of South Valley and his research field includes the Synthesis of some new sulfur content compounds (in the form of thiols, thiones, hetrocyclic sulfur and/or combined with other elements), and study the biological activities. e. g. Anticancer, Tuberculoses, and anti-infecte micro-organisms like Bacteria, Fungi.

Speaker Publications:

1. "Oxoketene Dithiols: Synthesis of Some Heterocycles as Antimicrobials Utilizing Shrimp Chitin as a Natural Catalyst";
2. "Dithiocarbamates as Precursors in Organic Chemistry; Synthesis and Uses" Journal of Sulpher Chemistry/Vol-3, Isuue-5, 300-323-2012.

3. "ChemInform Abstract: Ketoketene gem-Dithiols: Synthesis of Several Sulfur Heterocycles."; Journal of the Arch Pharm Vol 322,Issue-11, 2006.
4. "Pyrazine Heterocycles from 2,3-Pyrazinedicarboxylic Anhydride
Pyrazinderivate aus 2,3-Pyrazindicarbonsäureanhydrid"; Journal of Arch Pharm/ Vol 324, 2006.
5. "Thiafulvenes and Thiafulvalenes in Organic Chemistry: Synthesis and Chemical Reactions Journal of Phosphorous, silicon and the related elements / Vol 182, 2007 Isuue-9, Pages 1945-2007

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