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Synthesis of some heterocyclic compounds derived from furfural

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The present investigation includes the synthesis of number of 5,6 membered ring heterocyclic compounds containing one, two hetero atom such as pyrrole, thiazole, oxadiazole, thiadiazole. It include the synthesis of 2-methyl sulfonyl-5-bromo-6-(2-phenylamino)-1,3,4-oxadiazole-5-yl-1,3-pyrimidine (E9) from the reaction of 5-methylisothiouria sulfate (E2) with MBA to form the corresponding carboxylic acid (E3). This acid was then transformed into the corresponding hydrazide (E9) after a series of reaction processes. The resulting hydrazide was then reacted with isothiocyanate to yield the corresponding thiosemicarbazide (E8). Cyclization of this compound using mercuric oxide lead to the formation of oxadiazole derivative (E9), synthesis of 2-methyl sulfonyl-4-(N-formyl carbohydrazido)-5-bromo pyrimidine (E10) through the reaction of compound (E7) with formic acid, then cyclization of the product (E10) using phosphorous pentasulfide into thiadiazole (E11). This pathway also includes the synthesis of carboximido substituted pyrimidines (E15-E17) from the reaction of dimidone with (E12-E14). The resulting product was then allowed to react with compound (E4) to yield (E15-E17) compounds. The other part of this pathway include the synthesis of amidoxime (E18-E20) which then allowed to react with (E3) using DCC to form 2- methylthio-5-bromo-6-substituted amino oxmyl-1,3-pyrimidine-4-carboxylates (E21-E23) these carboxylates were cyclized by DMSO into 2-methyl thio-5-bromo-6-(3-substituted-1,2,4-oxadiazole-5-yl)-1,3-pyrimidine (E24-E26). The work also include the synthesis of 3,4- dibromocrotonolactone-5-(substituted) carboxylate (E27-E29) from the reaction of MBA with either acetyl chloride, benzoyl chloride or nitro benzoyl chloride. The compound (27) was then allowed to react with secondary aliphatic amines to form 5-(substituted amino)-3,4-dibromocrotonolactones (E30-E32). This pathway also includes the reaction of compound (28) with substituted anilines to give 4-(substituted anilino)-3-bromo-5-benzoyloxycrotonolactones (E33-E36).

Biography

Mohammad Salman Al-Ajely, He is working as a Prof.of Organic/Polymer Chemistry. He Completed his BSc, MSc..from Mosul University1976,1978, PhD. From Heriot- Watt university UK. and Mosul as joint research1993, Post Doc. In La-Trobe University Australia 2008. Training at Sheffield University 2009. Training at Cal. University USA 2012 Lecturer at Chemistry Dept.Education College 1980 Assistant prof. at the same Dept.1987 Prof.1998 Topic Taught: Organic ,Heterocyclic and polymer for ndergraduate and post graduate students. More than 75 papers were published and more than12 conference were attended in both fields, Iraqi patents 4 in both fieldsand more than 45 project for Iraqi ministry of higher Education and research.

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