Synthesis of New Fused Heterocyclic Compounds Containing Coumarine Moiety

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Coumarins are widely available from the natural sources [1] and exhibit various biological activities such as anticancer [2], inhibition of platelet aggregation [3], inhibition of steroid 5α-reductase [4] and anti HIV activity [5]. Herein we reported synthesis of some heterocyclic systems fused with coumarine in hoping that may be biologically active. 4-Chloro-2-oxo-2H-chromene-3-carboxaldehyde 1 was converted into the corresponding oxime 2. The produced oxime 2 was converted into 4-Chloro-2-oxo-2H-chromene-3-carbonitrile 3. Reaction of compound 3 with thiourea gave the corresponding 4-mercapto-2H-chromen-2-one 4. Also react with ethyl glycinate hydrochloride to give ethyl 2-(3-cyano-2-oxo-2H-chromen-4-ylamino) acetate 5, which was cyclized into ethyl 3-amino-4-oxo-1,4-dihydrochromeno[4,3-b]pyrrole-2-carboxylate 6. Reaction of 3 with ethyl mercaptoacetate gave ethyl 3-amino-4-oxo-4Hthieno[3,2-c]chromene-2-carboxylate 7. While its reaction with hydrazine hydrate gave 3-aminochromeno[4,3-c]-pyrazol-4(1H)-one 8. Aminochromenopyrazole was reacted with α,α-dicarbonyl compounds to chromeno[3,4:4',3']pyrazolo[1,5-a]pyrimidine 9.

1, X = CHO, Y = Cl
2, X = CH+NOH
3, X = CN, Y = Cl
4, X = CN, Y = SH
5, X = CN, Y = NHCH₂CO₂Et
6, Y = NH
7, Y = S
8
9

REFERENCES