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Preparation and identification of new hetero bicycle compound via cyclization reaction

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ABSTRACT - In this paper, synthesis of new bicycles of (five, six, seven)- member hetero cyclic compounds[4-8] via cyclization reactions. The synthesized compounds [1-8] have been characterized using several chemical techniques (H.NMR-spectra, (C.H.N)-analysis, FT.IR-spectra) and melting points.

Key words - Cyclization, Hetero bicycle

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In this work, the compounds have been synthesized from combination of two compounds by cyclocondensation or cyclization of same compound to produce hetero cycles including heteroatom from nitrogen and sulphur atoms, for this reason their biological activity highly efficient and low poisonous.

Since the discovery of the biological importance [1,2] of these compounds, the aim of many researches product was to synthesize many different substituted and various uses were a subject of many studies [3-12].

EXPERIMENTAL METHODOLOGY

– All chemicals used were supplied from Merck and BDH-chemical company .

– All measurements were carried out by :

- Melting points : electro thermal 9300, melting point engineering LTD, U.K

- FT . IR spectra : fourrier transform infrared shimadzu 8300 – (FT . IR), KBr disc was performed by CO.S.Q.C. Iraq

- H.NMR-spectra and (C.H.N) – analysis : in center lab – institute of earth and environmental science, al –byat university, Jordan.

Synthesis of 4-Ptopanoat -6-methyl-hydro pyridazinone [4]:

The compound [4] was synthesized by reaction between (0.01 mole, 1.6 g)diethylmalonate and acetyl methyl chloride in refluxed for (2hrs) until the precipitate formed, after cooling, the precipitate was filtered off, then (0.01 mole, 2.1 g)of this precipitate was condensed with (0.01 mole, 0.32 g) of hydrazine in presence of absolute ethanol with reflux for (2hrs), after cooling, the precipitate was filtered off and recrystalized to yield 86 per cent from compound [4].

Synthesis of : 3,4-pyrazolone-6-methyl hydropyridazine[5]: and : 3,4-thiazepanone -6-methyl –hydropyridazine [6]:

Condensation reaction by refluxing mixture of (0.01 mole, 1.8 g) of compound [4] with one of[(0.01 mole, 0.32 g) of hydrazine, (0.01 mole, 0.7 g) of mercapto amino ethylene)], respectively, were react for (4hrs), after cooling, the precipitate was filtered off and recrystalized to give 84 per cent, 87 per cent of compounds [5, 6], respectively.

Synthesis of 3-propanoate –hydro thiophen -2-one [7] : and 2,3-thiazepinone –dihydrothiophen [8]:

(0.01 mole, 1.6 g) of diethyl malonate was condensed with (0.01 mole, 0.9 g) of mercapto ethylene chloride in presence of ethanol with refluxing for (2hrs) ,the precipitate was filtered off, then (0.01 mole, 2.2 g) of this precipitate was cyclized upon heating in refluxing for (4hrs), after cooling, the