
**Synthesis of 1,3 – Diazepine -4-7 diones
Analogue to valium which is used for the
control of anxiety, tension states and an
antidepressant agent**

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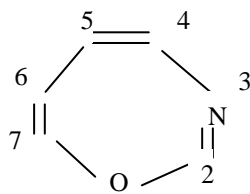
**تحضير ١، ٣ ديازابين ٤-٧ دايون المماثل للـ (الفاليوم)
الذي يستعمل كعامل للسيطرة على القلق وحالات
التوتر ومضاد الكآبة.**

جامعة بغداد - كلية التربية (ابن الهيثم) - قسم الكيمياء

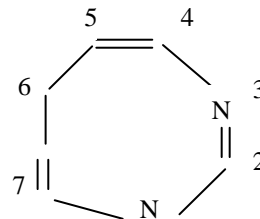
مهند جميل محمود / ميسون طارق توفيق / هنادي قاسم محمود

Introduction

Oxazepine [1] is non - nomologous seven -member ring that contain two netroatoms (oxygen and nitrogen). Meanwhile diazepine [2] contains to nitrogen atoms in seven - member ring.

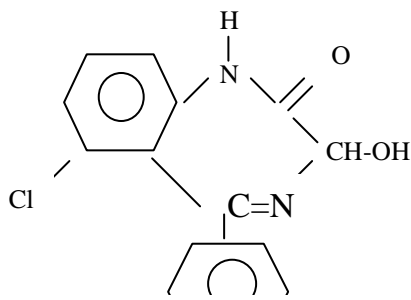


1.3 oxazepine
[1]

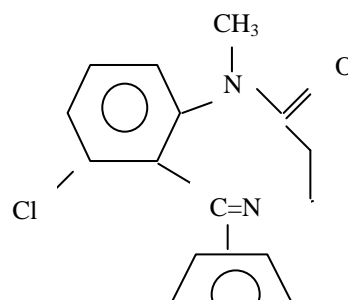


1.3 -Diazepine

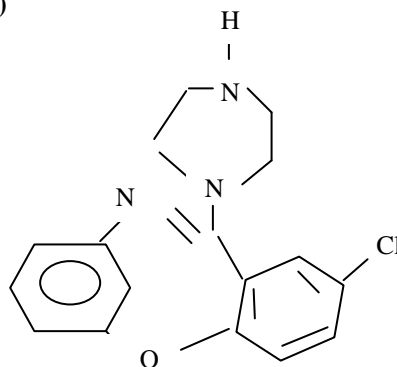
Diazepam (valium) [2] is used to rel [2] sion associated with anxiety disorder and muscle spasms (1, 2, 3) as well as alcohol withdrawal, and other clinically uses.



Oxazepam (Serax)
[4]



Diazepam (Valium)
[3]



Asendin (amoxpine)
[5]

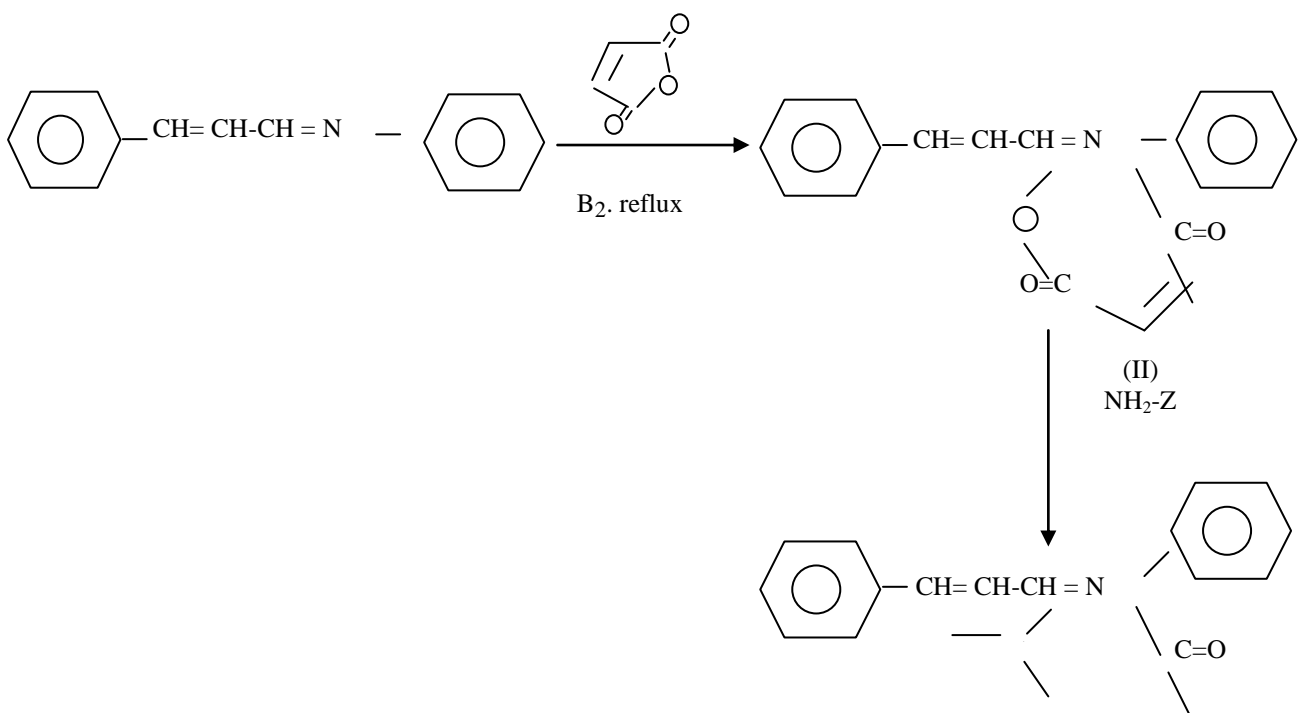
oxazepam (serax) [4] is a new benzodiazepine derivative introduced in 1965 for use in the relief of psychoneuroses characterized by anxiety and tension. It is said show a lower incidence of side – effect and reduced toxicity.

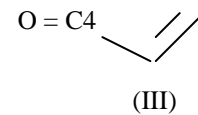
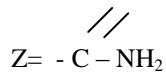
A sendin (amoxapine) [5] is an antidepressant with a mild sedative component to its actor. The mechanism of its clinical action in human is not well understood. In animals, amoxapine reduced the uptake of receptors to dopamine.

Many researchers (4, 5, 6, 7) employed a pericyclic reaction to synthesize oxazepine derivatives.

F. A. Hussein etl .al (6, 7) prepared N – Cinna mulidene aren amine [I] by condensation of cinnamaldehyde with primary aromatic amine and were react with maleic anhydride [scheme 1].

In this work a 1, 2, 3 –substitued – 1, 3 oxozepine - diazepine – 4, 7 Odiones (III) was obtained by reaction of 1.3 -4.7 dione (II) with ammonia derivative [Scheme 1].





Scheme (1)

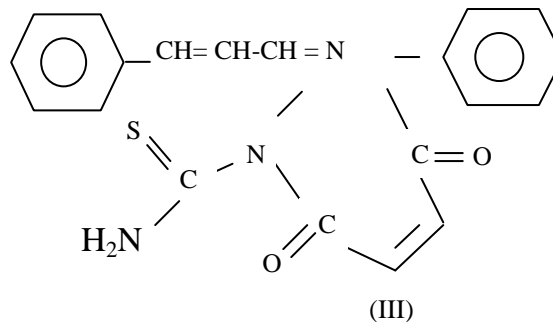
3) Experimental

Synthesis of 1, 2, 3 -substitued -1, 3 -diazepine - 4- 7 dione [III]

General procedure.

A mixture of equimolar amount (0.02 mole) of 1, 3-oxazepine -4, 7 diones [II] with selected primary amines in 50 ml of dry benzene was refluxed for (4-5 h.). the solvent was removed and resulting colored crystalline solid was recrystallined from ethanol to 65% yield product m.p. =170.171°C.

4) Result and Discussion



IR absorption bands (Cm^{-1}) of 1, 2, 3 -substitued -1, 3 -diazepine - 4, 7-diones 1-thio Carbnxamide [III]

NHstr. Cm^{-1}	CH. Str. Allatic cm^{-1}	CH. Str. Vinyllic cm^{-1}	C=O str. cm^{-1}	C=S str. cm^{-1}	C=C Vinyllic cm^{-1}	C=C Promatic cm^{-1}	NH berd cm^{-1}
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3470 asym.	3195	3120	1690	1260	1495	1625	1590
3345 sym.							

The diazepine compounds were identified by m.p. IR. And Ur-vis spectra. The lacton group (Cyclic ester) in oxazepine compounds can be converted into lactam group (cyclic amide) in diazepine compounds by reaction with aromatic primary amines. The IR. Showed the disappearance of the band at (1720 cm^{-1}) is due to lactone in oxazepine ring, the appearance band at (1685 Cm^{-1}) is due to olactam in diazepine derivatives, other evidence disappearance of a band (1164 cm^{-1}) is due to (C-N) of⁽⁸⁾ lactam in diazepine ring as a result of the conversion of xoazepine compounds to diazepine compounds.

References:

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