A NOVEL APPROACH TOWARDS THE SYNTHESIS OF THE 3,4,5-TRIHYDRO-1,3-DIAZEPIN-5-ol RING STRUCTURE

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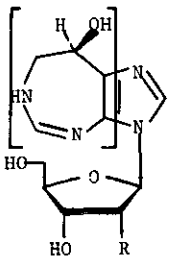
Our efforts directed towards the synthesis of potential inhibitors of the enzyme adenosine deaminase have yielded a new and novel method for the formation of a 3,4,5-trihydro-1,3-diazepin-5-ol ring (Figure 1, in brackets) fused to another heterocyclic ring. A bicyclic heterocyclic ring system containing the 3,4,5-trihydro-1,3-diazepin-5-ol structure fused to an imidazole ring is shared by the nucleoside antibiotics 2'-deoxycoformycin (1) and coformycin[2] (2), both potent inhibitors of adenosine deaminase.[3]

Figure 1.



1, R = H; pentostatin

2, R = OH, coformycin

We now wish to report on the synthesis of a bicyclic heterocyclic ring system containing the 3,4,5-trihydro-1,3-diazepin-5-ol ring fused to a pyrazole ring. This synthetic route involves a new, novel and general approach towards the formation of a fused 3,4,5-trihydro-1,3-diazepin-5-ol ring.

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