SYNTHESES AND REACTIONS OF 5-ALKOXY-2-PYRROLIDINONE DERIVATIVES

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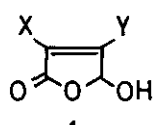
Syntheses of new 3,3- or 3,4-disubstituted 5-alkoxy-2-pyrrolidinones and their reactions with adenosine triacetate as nucleophile were investigated.
The reaction of 3-halo-5-hydroxy-2(5H)-furanones (1) with sodium methoxide followed by acidification with methanolic hydrogen chloride gave new pseudoesters (2), respectively. Compounds (2) were converted to 3,3,5-trimethoxy-2-pyrrolidinones (3) via hydroxylactams, by treatment with aqueous ammonia and successive refluxing in methanol containing catalytic amount of hydrogen chloride. 3,3-Dithioacetals (4) were also obtained by similar method.
3,4-Imino, 3,4-epoxy and 3,4-diamino derivatives (5, 6, and 7) were easily obtained from compound 8 by modifications of C=C double bond, respectively.
Hydrolysis of 3 (Y=H) with 10% HCl afforded 3-oxo derivative (9), which was found to exist in D_2O as the equilibrium mixture of keto and gem-diol form.
A new type of N^6-substituted adenosine derivatives (10) were obtained by nucleophilic substitution reaction of 5-alkoxy-2-pyrrolidinones with adenosine triacetate.



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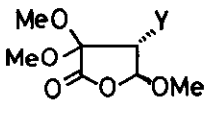

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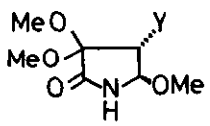

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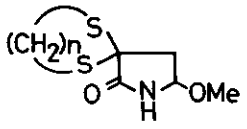

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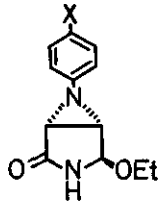

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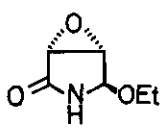

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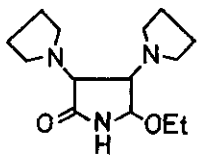

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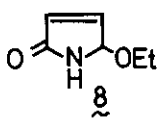

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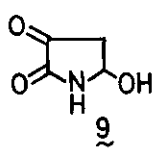

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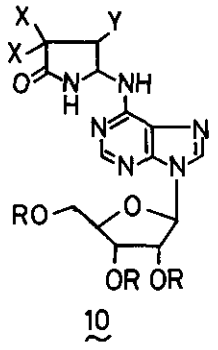

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