

50376  
1984  
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50376,  
4984.  
68-2.

N° d'Ordre :

617

# THESE

PRESENTEE A

L'UNIVERSITE DES SCIENCES ET TECHNIQUES DE LILLE

POUR OBTENIR LE GRADE DE

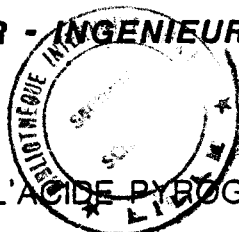
## DOCTEUR ES SCIENCES PHYSIQUES

PAR

*Benoit RIGO*

**INGENIEUR ITR**

**DOCTEUR - INGENIEUR**



COMPOSES ISSUS DE L'ACIDE PYROGLUTAMIQUE :

- PREPARATION PAR REACTION AU NIVEAU DES POSITIONS 1,2,3 et 5
- PROPRIETES BIOLOGIQUES DE QUELQUES DERIVES

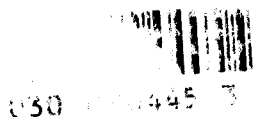
**EMPLACEMENT DANS LE TEXTE DES  
PRINCIPALES FORMULES CITEES**

Soutenu le 28 Mai 1984 devant la Commission d'Examen

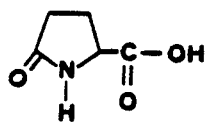
Président D. COUTURIER

Rapporteurs R.A. OLOFSON  
C. LESPAGNOL

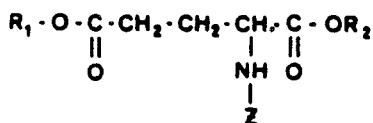
Examineurs G. LEPOUTRE  
G. PAULY  
F. PETIT  
F. WALLART



# EMPLACEMENT DANS LE TEXTE DES PRINCIPALES FORMULES CITEES

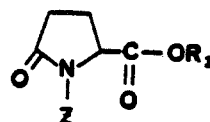


1 :  
p : 1,4,7,12,13,14,17  
73,91,140,148,178



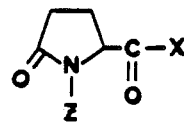
2 :

p : 2



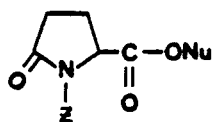
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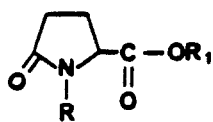


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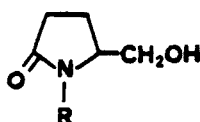
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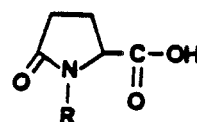
5 :  
p : 2



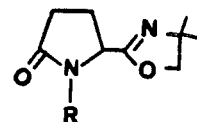
6 :  
p : 3,4,18,  
127,128



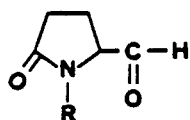
7 :  
p : 3



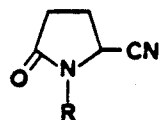
8 :  
p : 3,166



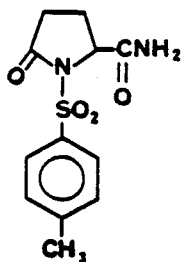
9 :  
p : 3



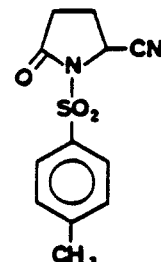
10 :  
p : 3



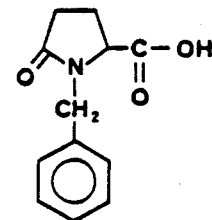
11 :  
p : 3,151,152



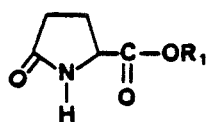
12 :  
p : 3



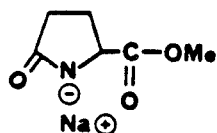
13 :  
p : 3,152



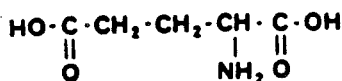
14 :  
p : 3,140,184



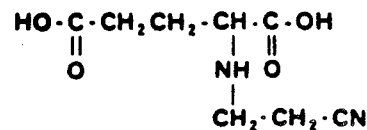
15 :  
p : 4,8,9,77



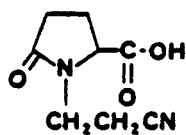
16 :  
p : 4,29,37,38,  
39,40,41,42,  
54,76,87,94



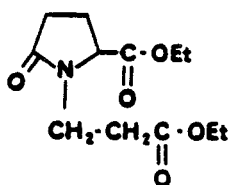
17 :  
p : 4,5,12,14,29



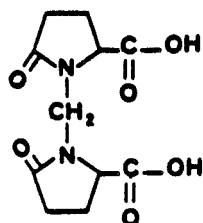
18 :  
p : 4



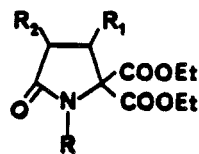
19 :  
p : 4,47



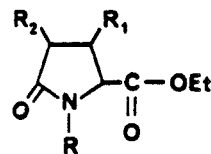
20 :  
p : 4,5,47,49



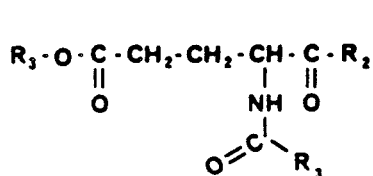
21 :  
p : 4,104



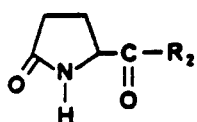
22 :  
p : 4,43,44



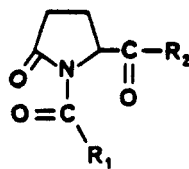
23 :  
p : 4



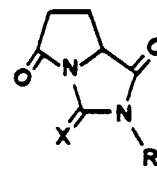
24 :  
p : 5,82



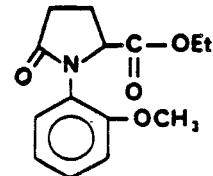
25 :  
p : 5



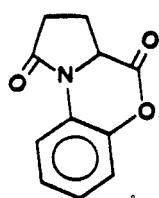
26 :  
p : 5,73,141



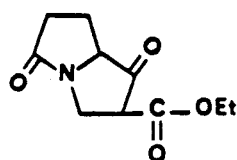
27 :  
p : 5,90



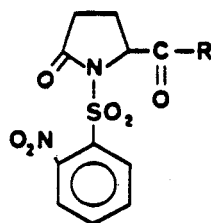
28 :  
p : 5,14



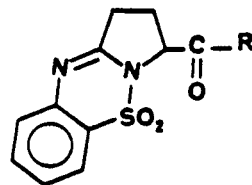
29 :  
p : 5



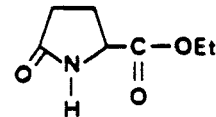
30 :  
p : 5



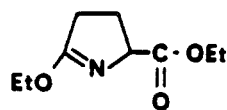
31 :  
p : 5



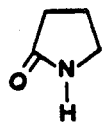
32 :  
p : 5



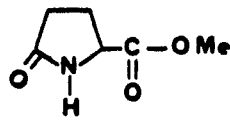
33 :  
p : 6,10,12



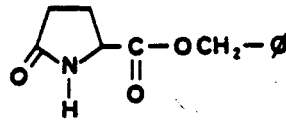
34 :  
p : 6



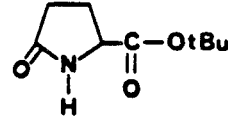
35 :  
p : 7,91



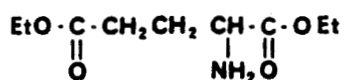
36 :  
p : 9,10,12,15,  
16,73,74,75,76,  
82,83,84,85,87,  
94,123,124,133,  
134,135,136,142,  
143,149,210,214



37 :  
p : 9,10,14

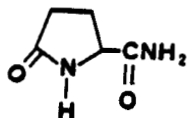


38 :  
p : 9,10,13



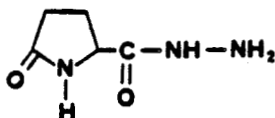
39 :

p : 8, 9, 14, 45, 46, 48, 50, 54



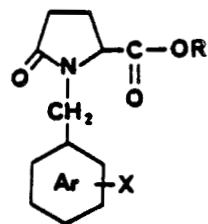
40 :

p : 9, 15, 152, 154, 156, 161, 210, 214



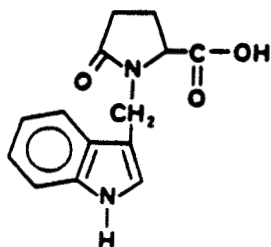
41 :

p : 9, 16, 160, 161, 164, 178, 186, 189, 210, 214



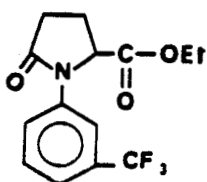
42 :

p : 18, 20, 27, 28, 51, 54, 96, 113, 170



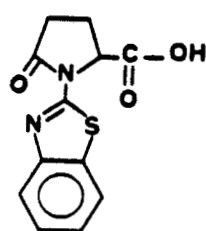
43 :

p : 18, 20, 54, 140



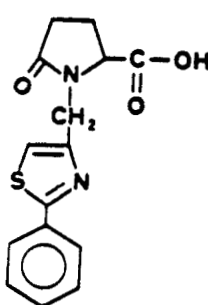
44 :

p : 18, 20, 43, 44, 130, 148



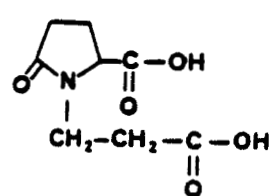
45 :

p : 18, 20, 140, 147



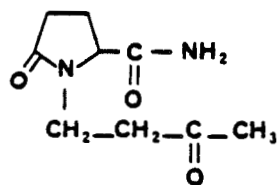
46 :

p : 18, 20, 140



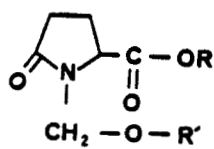
47 :

p : 22, 47, 49, 140



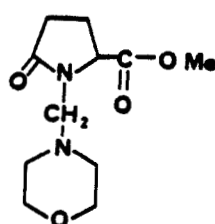
48 :

p : 22, 159, 160, 161, 162



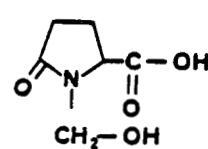
49 :

p : 23, 24, 60



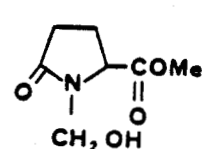
50 :

p : 23, 24, 60



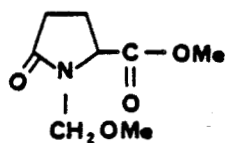
51 :

p : 60, 140



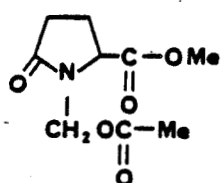
52 :

p : 55, 60



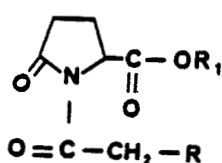
53 :

p : 60



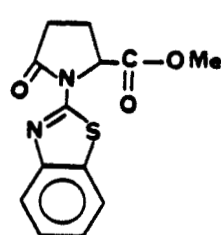
54 :

p : 60



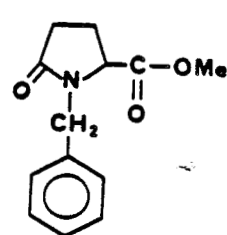
55 :

p : 26



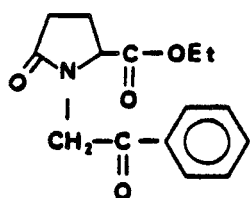
56 :

p : 37, 38, 147

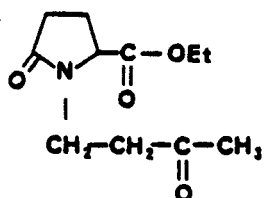


57 :

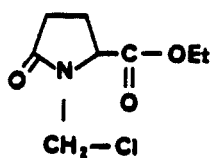
p : 159, 163, 164, 184, 187, 210, 214, 215



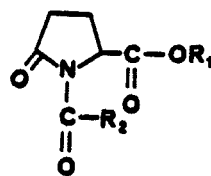
58 :  
p : 45,46,146



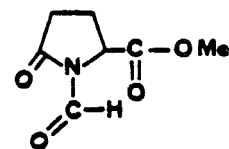
59 :  
p : 48,50,147,  
159,162



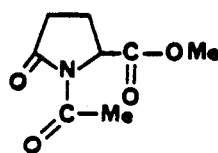
60 :  
p : 60



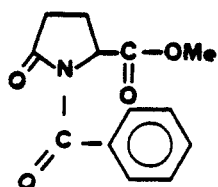
61 :  
p : 73,79,80



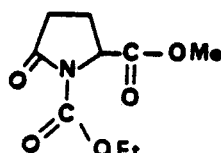
62 :  
p : 73,80,82,83,  
87,134,136



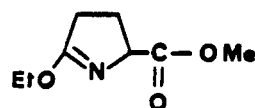
63 :  
p : 74,80,82,  
85,88



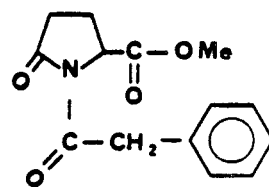
64 :  
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84,88,133



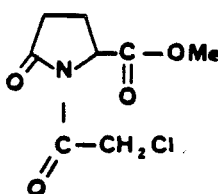
65 :  
p : 75,80,84



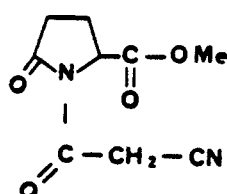
66 :  
p : 75,76,77,86,  
120,121,124



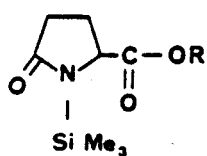
67 :  
p : 72,76,82,87



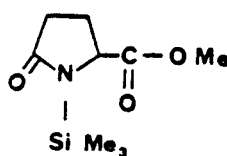
67' :  
p : 75,80,85,142,  
143,149



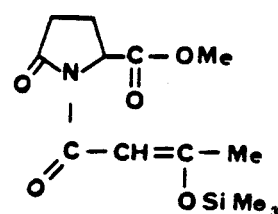
68 :  
p : 76,80,86



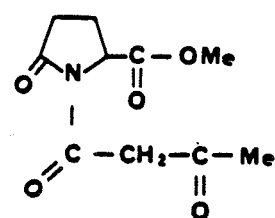
69 :  
p : 77,78,79,208



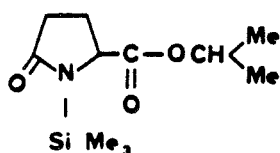
70 :  
p : 78,79,85,86



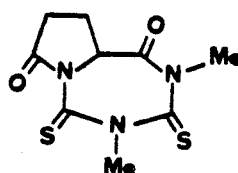
71 :  
p : 79,207



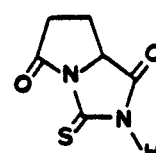
72 :  
p : 79,80,86,207



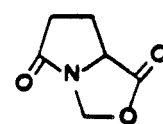
73 :  
p : 78,83



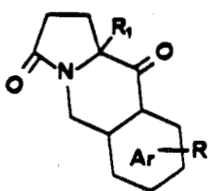
74 :  
p : 90,91,93,94



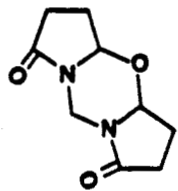
75 :  
p : 5,91



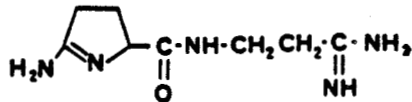
76 :  
p : 62,95,  
146,205



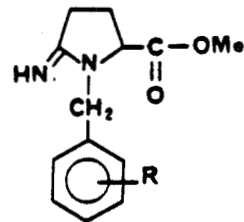
77 :  
p : 96



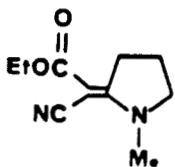
78 :  
p : 105



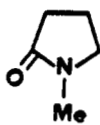
79 :  
p : 113



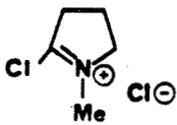
80 :  
p : 113



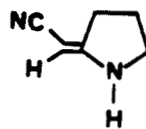
81 :  
p : 114, 116,  
122



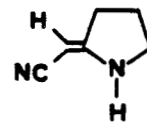
82 :  
p : 114,  
116, 122



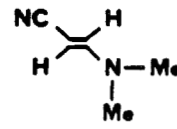
83 :  
p : 115



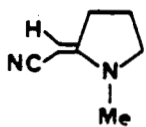
84 :  
p : 117



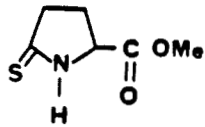
85 :  
p : 117



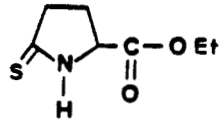
86 :  
p : 117



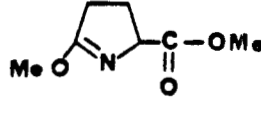
87 :  
p : 117, 118,  
122



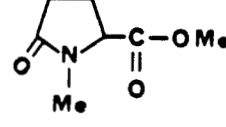
88 :  
p : 119, 120,  
123, 210



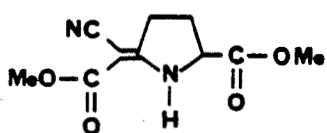
89 :  
p : 120, 121



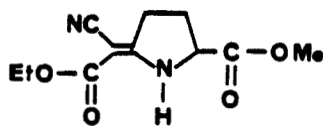
90 :  
p : 120, 123



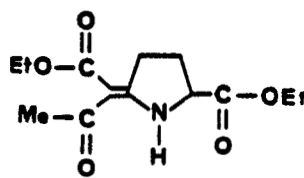
91 :  
p : 120, 123



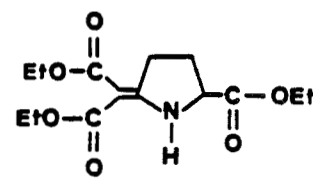
92 :  
p : 121, 124



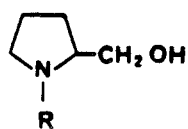
93 :  
p : 121, 125



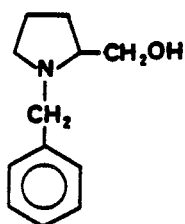
94 :  
p : 121



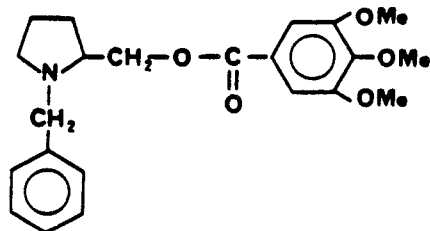
95 :  
p : 121



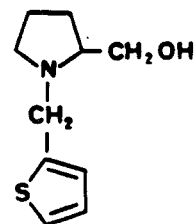
96 :  
p : 29,127



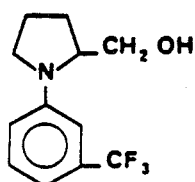
97 :  
p : 29,130



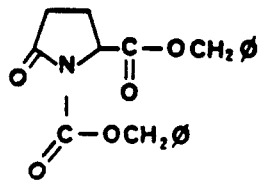
98 :  
p : 29,190



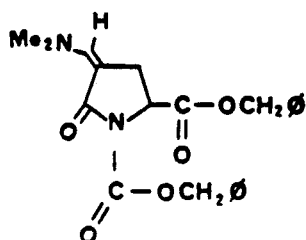
99 :  
p : 29,129



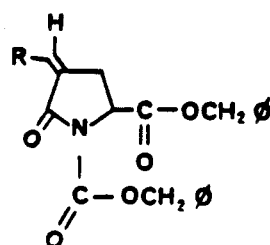
100 :  
p : 130



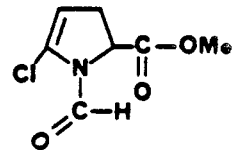
101 :  
p : 131



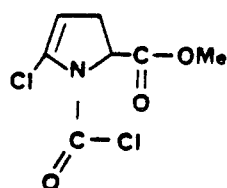
102 :  
p : 131



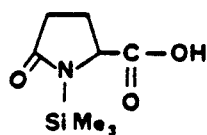
103 :  
p : 131



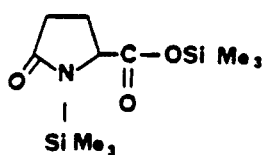
104 :  
p : 135,136,137



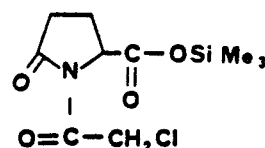
105 :  
p : 135



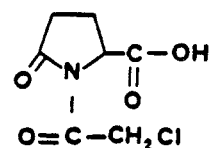
106 :  
p : 78,140,141,  
148,149,208



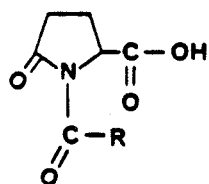
107 :  
p : 78,141,142,148,  
149,150,208



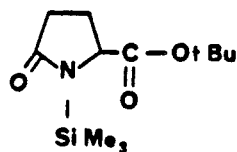
108 :  
p : 142,143,149



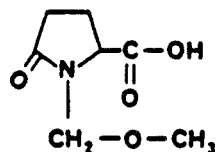
109 :  
p : 142,143,150



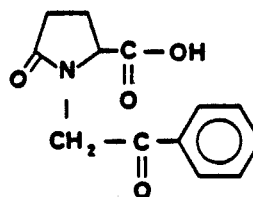
110 :  
p : 143,145



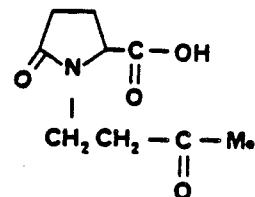
111 :  
p : 78,79,145



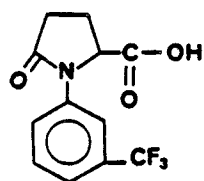
112 :  
p : 95,140,146



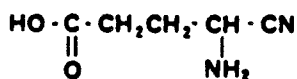
113 :  
p : 140,146



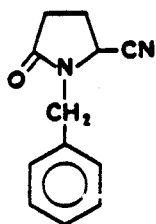
114 :  
p : 140,147



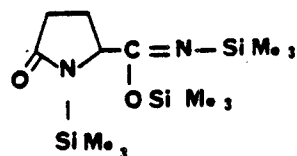
115 :  
p : 140,148,  
210,214,215



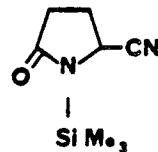
116 :  
p : 151



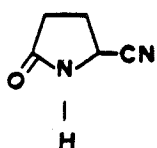
117 :  
p : 29,152,  
155



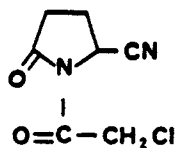
118 :  
p : 154,156



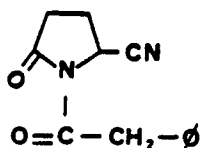
119 :  
p : 154,155,  
156,157,208



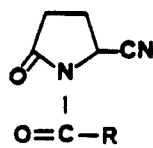
120 :  
p : 3,155,157



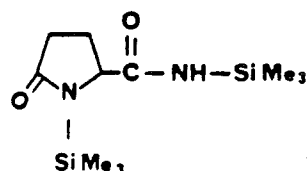
121 :  
p : 151,157



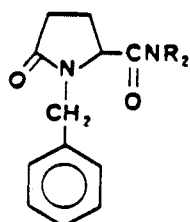
122 :  
p : 155,158



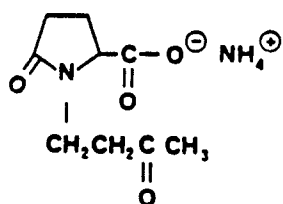
123 :  
p : 155



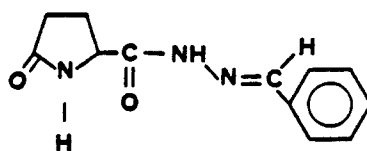
124 :  
p : 156



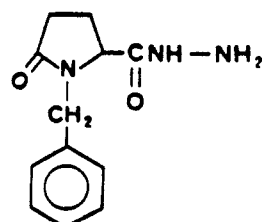
125 :  
p : 34,159



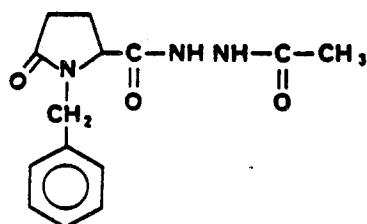
126 :  
p : 159,162



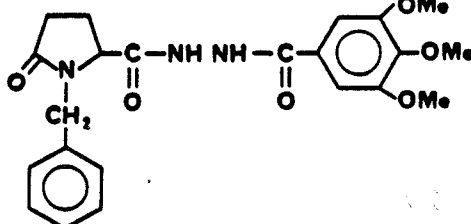
127 :  
p : 160,161,164,178,  
181,211,216



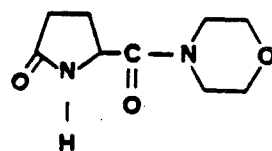
128 :  
p : 160,161,164,165,  
167,187,188,211



129 :  
p : 160,161,165,179,  
181,201,211

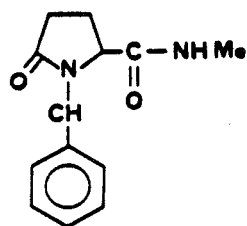


130 :  
p : 160,161,165

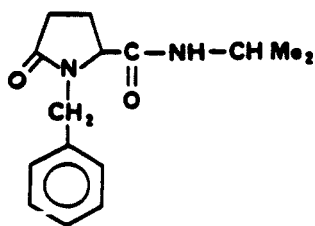


131 :  
p : 15,161,211

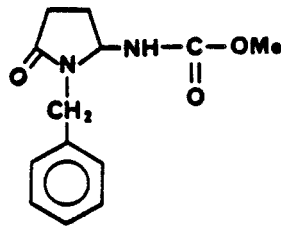




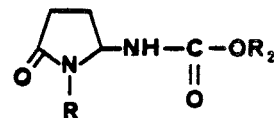
132 :  
p : 159,161,163



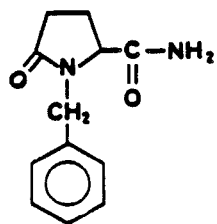
133 :  
p : 159,161,163



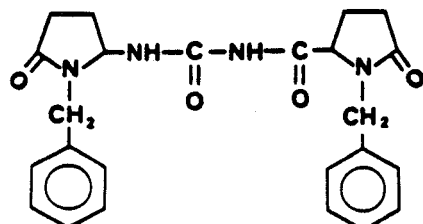
134 :  
p : 166,167,168



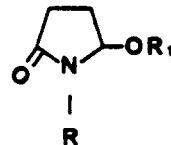
135 :  
p : 166



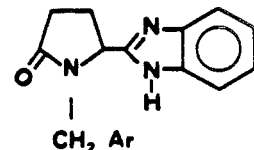
136 :  
p : 159,161,167,  
168,210



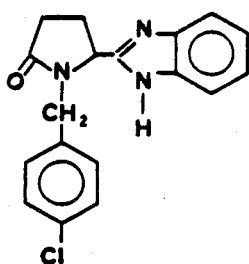
137 :  
p : 161,167,168



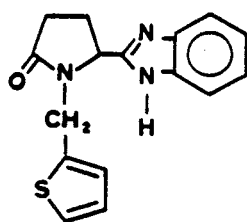
138 :  
p : 166,167



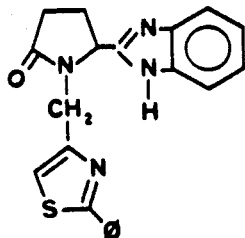
139 :  
p : 169,170



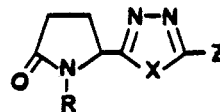
140 :  
p : 170,171,205,  
213



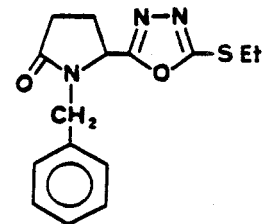
141 :  
p : 170,172,213



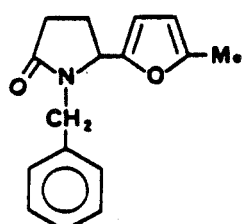
142 :  
p : 170,171,213



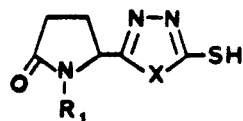
143 :  
p : 173,176



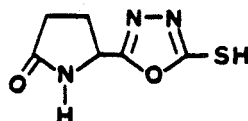
144 :  
p : 192,194,212



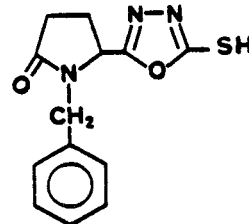
145 :  
p : 179,181,200,  
202,212,215



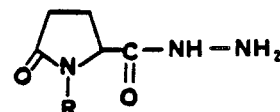
146 :  
p : 191,192



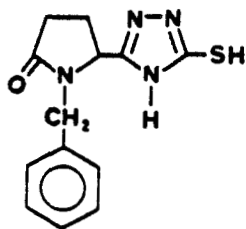
147 :  
p : 186,200, 203,  
211



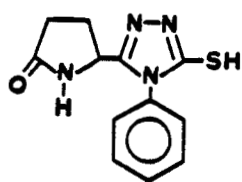
148 :  
p : 187,194,211



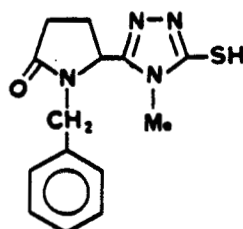
149 :  
p : 166,184



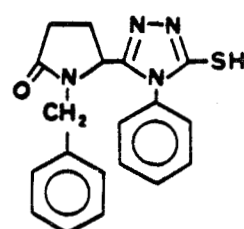
150 :  
p : 184, 187, 196, 212



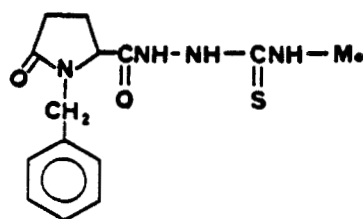
151 :  
p : 184, 189, 195,  
200, 202, 212



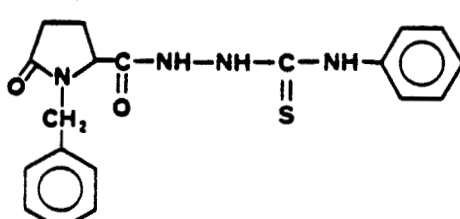
152 :  
p : 184, 189, 197, 212



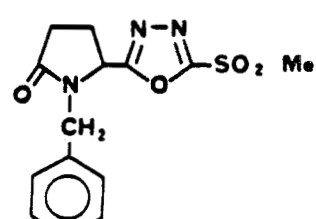
153 :  
p : 184, 190, 212



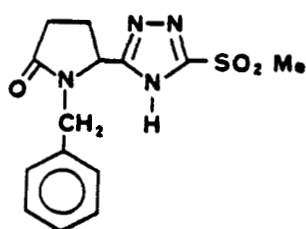
154 :  
p : 161, 184, 188, 189, 211



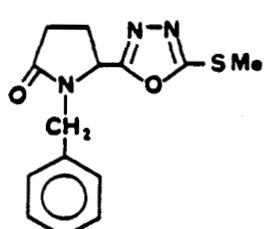
155 :  
p : 161, 184, 188, 190, 211



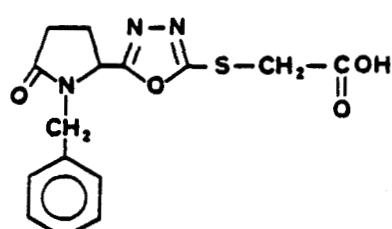
156 :  
p : 193, 198, 213



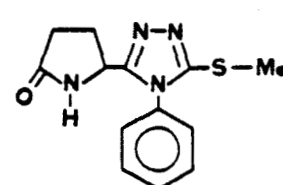
157 :  
p : 193, 198, 213



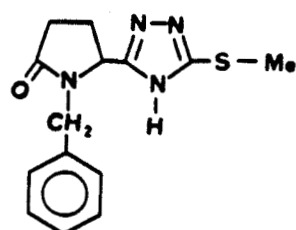
158 :  
p : 192, 194, 198, 212



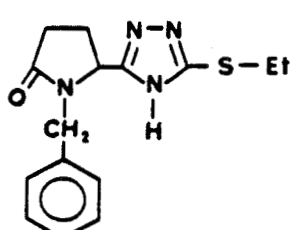
160 :  
p : 192, 195, 205, 213



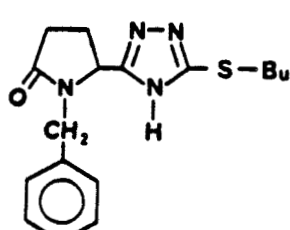
161 :  
p : 192, 195, 213



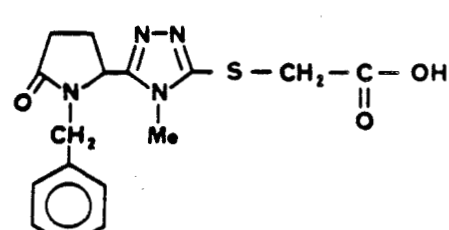
162 :  
p : 192, 196, 198, 212



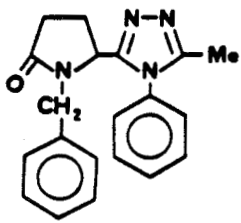
163 :  
p : 192, 196, 213



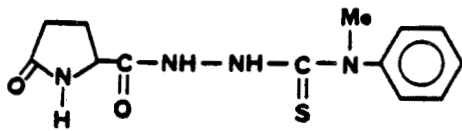
164 :  
p : 192, 197, 213



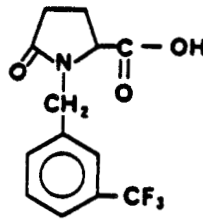
165 :  
p : 192, 197, 213



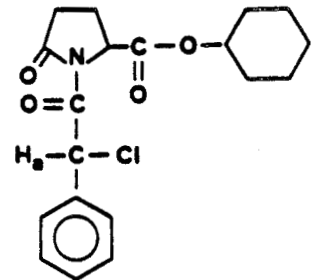
166 :  
p : 200,202,212,  
215



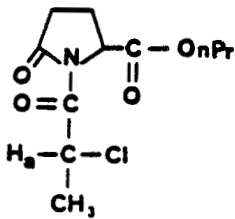
167 :  
p : 161,200,203,211



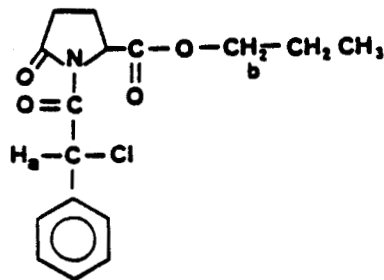
168 :  
p : 140,210,214,  
215



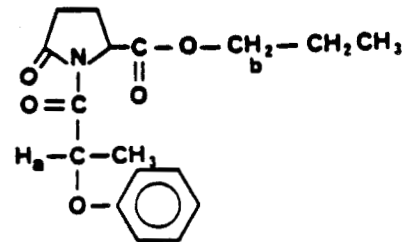
169 :  
p : 81,209



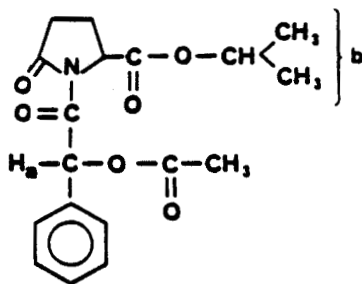
170 :  
p : 81,209



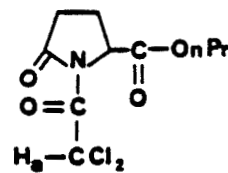
171 :  
p : 81,209



172 :  
p : 81,209



173 :  
p : 81,209



174 :  
p : 81,209

