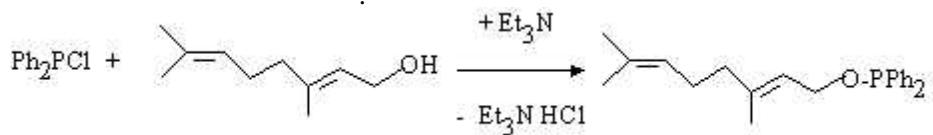


1,5-  
[1-3]

( 3,7- -2,6-  
-1- ) 4



<sup>31</sup>  
 $\delta$  111.8

$\text{Ph}_2\text{POR}$

[4].

$\delta$  113 [4].

1  $\text{DCl}_3$   $\delta$  7.28-7.58 7.67-

7.70

$\nu$  (C-H, Ar),

$\nu$  1667

$\nu$  3056

$\nu$  (=)

$\nu$  (=, Ar).

$\nu$  1591 1483

[M]<sup>+</sup> (

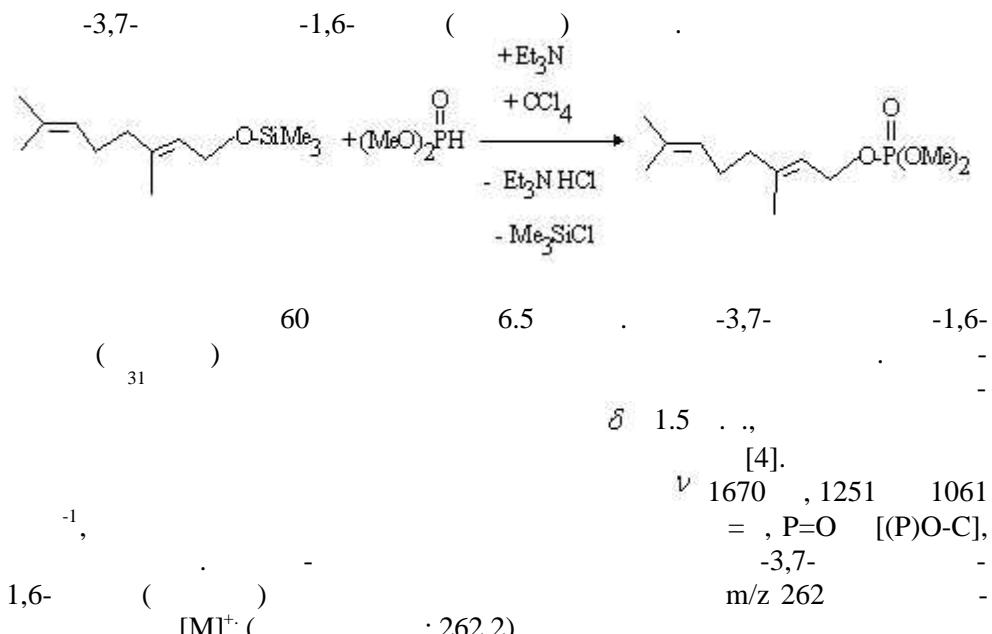
m/z 338,

-2,6- -1- (- ) : 338.2). -3,7-

( - 3,7- -2,6- -1- )

1





Bruker CXP-100 (36.5), -c KBr. - 85%-,  $\delta$  <sup>3</sup> <sup>4</sup>)  
 (400 ) . <sup>1</sup> <sup>13</sup>C CDCl<sub>3</sub> c Bruker MSL-400  
 ) . CDCl<sub>3</sub> - (Me<sub>3</sub>Si)<sub>2</sub>O  
 Turbomass Gold Perkin Elmer. Bruker MSL-400 (100.6)

6.4 (41.7) -3,7- 20 4.2 (41.5) -2,6- 1 ( ) 50 . -  
 9.2 (41.7) 20 . 1 (0.04) 40 . -1- (0.5) . . 40 . -  
 20 (0.5) . . 8.5 (60 %) -3,7- (0.04) . . 40 . -1-  
 ( ) 1-( -3,7- 2,6- ) 8.97. C<sub>22</sub>H<sub>27</sub>OP. ,%: 9.15.  
 (38.9) 1-( -3,7- 2,6- ) 4.7 (46.4) ) 60 . 6.0 -  
 20 1 6.1 (39.0) . . ~20 (0.5) . .  
 20 (0.5) . . 1 (0.06) . . 40 . . 10.5  
 40 1 (0.06) . . 40 . . n<sub>D</sub><sup>20</sup> 1.4710.  
 (98 %) 1-( -3,7- 2,6- ) ,%: 11.29.  
 %: 10.54. C<sub>14</sub>H<sub>27</sub>OP. ,%: 11.29.  
 1-( -3,7- 2,6- ) 6.0 (38.9) , 4.7 (46.4) ) 6.1  
 (39.0) , , 10.4 (97 %). n<sub>D</sub><sup>20</sup> 1.4703.  
 %: 11.38. C<sub>14</sub>H<sub>27</sub>OP. ,%: 11.29.  
 20.0 (129.6) -2,6- 13.1 (129.4) 100  
 ( . . 70-100 ) 15 . -  
 4 20 14.1 (129.8) . -  
 . . . 1 (0.02) . .  
 40 . (0.5) . . 40 1 . -  
 15.3 (52 %) 120 (0.05) . . , n<sub>D</sub><sup>20</sup> 1.4535.  
 %: Si 12.01. C<sub>13</sub>H<sub>26</sub>OSi. -3,7- -1,6- ( ) . 0.7 (6.4)  
 ) , 0.54 (6.5) , 1.4 (6.2) ) .  
 10 ( ) 1.0 (6.5) . 60 6.5 .  
 (0.5 . . 40 1 1 (0.02) . . 40 . .  
 1.0 (59 %) -3,7- -1,6- ( ) .  
 ( , R<sub>f</sub> 0.92 (Silufol UV-254, n<sub>D</sub><sup>20</sup> 1.4554.  
 ,%: 11.84. C<sub>12</sub>H<sub>23</sub>OP. ,%: 11.82. - ( 03-03-96208).

