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( . . . . ).

Å 5

**1:** .....7

1.1 .....7

1.2 ã ã ã ã ã ã ã ã ã ã ã ã ã ã .8

1.3 ã ã ã ã ã ã ã ã ã ã ã ã ã ã .9

1.4

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**2:** .....14

2.1 ã ã ã ã ã ã ã 14

2.2 ã ã ã ..15

2.3 ã ã ã ã ã ã ã ..16

2.3.1 (SO2) ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã 16

2.3.2 (CO) ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã .17

2.3.3 (CO2) ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ...17

2.3.4 ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã 18

2.3.5 (NO2) ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã 18

2.3.6 (O3) ã 19

**3:**  
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3.1 ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ..20

3.2 .....21

3.2.1 ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã .22

3.2.2 ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã ã .25

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3.4

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**4:**

õ õ õ õ õ õ õ õ õ õ õ 29

4.1

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4.2

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4.2.1

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4.3

õ .....32

**5:**

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õ õ 34

5.1

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5.2

õ õ ..35

5.3

.....36

5.4

õ õ õ õ õ õ õ õ õ õ õ õ õ õ õ õ 37

õ õ õ õ õ õ õ õ õ õ õ õ 38

õ õ õ õ õ õ õ õ õ õ õ õ 40

õ õ õ õ õ õ õ õ õ õ õ õ 41



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( q ).

(Miller, 1999).

(Miller, 1999).

( ., 1996).



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## 1.1



1.1:

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( . . . . ., 2006)

## 1.2

: « »  
 (London smog),  
 (SO<sub>2</sub>) , « »,

(Los Angeles smog),  
 (CO), (NO<sub>x</sub>),

(

O<sub>3</sub>). ( . . . . ., 1996)



1.2: (London smog)





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( , 1996).

( , 1997):

- , 59,9%
- 8,7%
- 2,5%
- . 7,8%
- - 2,6%

**1.4**

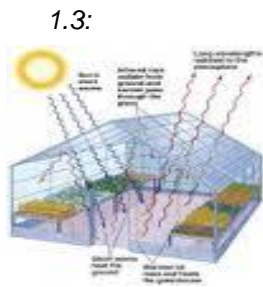
( ).

( , 2000).

20

( , 2000).

( . . . , 2001):



« »

1822

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2040

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5 C.



1.4:

30 Km (

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15

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DNA,  
1970

1980

Freon),

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1994



1.5:



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5,6 p H.

pH

5.

## 2.1

2007).

, 1997:

- **(gases):**

- **(vapors):**

- **(Dust):**

- **(smoke):**

- **(fume):**

particulate):

- (fly ash):
- (fog):
- (mist):

2.2

(Miller, 1999, 225)

1. , ( ).
2. ,
3. , ,
4. ,



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 ( , ), . ( . , 2007).  
 (SO<sub>2</sub>),  
 (CO), (CO<sub>2</sub>)  
 . (O<sub>3</sub>)  
 « » . ( . , 2007).

**2.3.1 (SO<sub>2</sub>)**

To ,

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 ( . . )  
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 (European Lung Foundation, 2005  
 . . . . . , 2006).





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**2.3.2 (CO)**

.( . . . . ., 2006). CO

**2.3.3 (CO<sub>2</sub>)**

2006). ( . . . . ., (CO<sub>2</sub>)

« »

### 2.3.4

10 m ( ) -10 -2,5, ( . , 2007).

( O<sub>2</sub>) (O<sub>3</sub>).  
(Seinfeld J .H & Pandis S .N ., 1998).

( . , 2007).

:

### 2.3.5

(NO<sub>2</sub>)



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(NO) (European

Lung Foundation, 2005 . . . . ., 2006).

**2.3.6 (O<sub>3</sub>)**

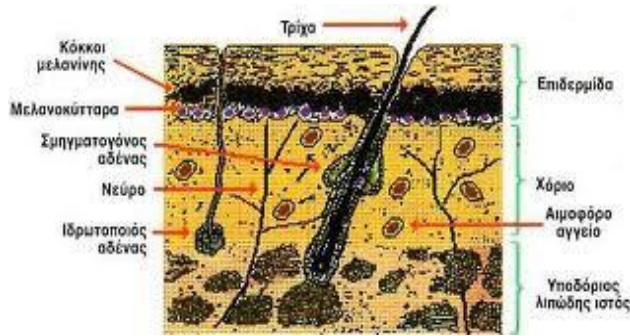
( « », 15- 40 ),

(UV),  
(EUROPEAN LUNG

FOUNDATION, 2005- Y. . . . ., 2006).

(Burnett B et al, 1997).

3:



3.1

3.1:

12-16 %

1,8 . . .

1,6 . . .

(Wysocki AB., 1999).

5- 8%

30- 32%

75 g,

4- 6 Kg,

22- 24 g

(Wysocki AB., 1999).

(Wysocki., 1999).

(. , 1994).

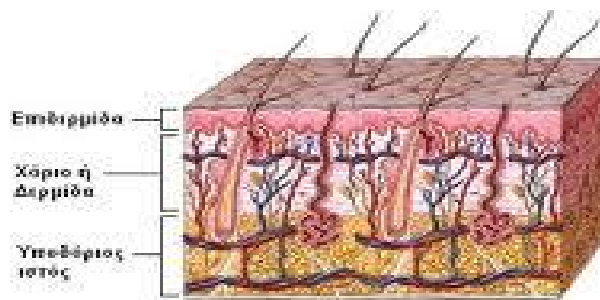
( , , , )

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. . (. , 1994).

### 3.2

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3.2:

1991).

(L. Carlos Junqueira et al.

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i. ,

Paccini,

ii. ,

(L. Helmut, 1985).

### 3.2.1

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, (Fitzpatrick, Thomas B.,

1998):

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(Guyton, 1990).

I.

( . ., 1991).

II.

(L. Helmut, 1985).



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2-3

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(Rothman S. 1954).

IV.

(L. Helmut, 1985).

V.

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(Rothman S., 1954).





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(L.

Helmut, 1985).

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A.

B.



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(L. Helmut, 1985).

(L. Helmut, 1985).

### 3.2.3

( ) .

( ), ( )

( )  
( . , 1994).

### 3.3

1990): (Guyton,

- ( , ). ,
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(Guyton, 1990).

(Guyton, 1990).

### 3.4

(Guyton, 1990).

(L.

Helmut, 1985).



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## 4.1

(Abu Bakar, C., 1993).

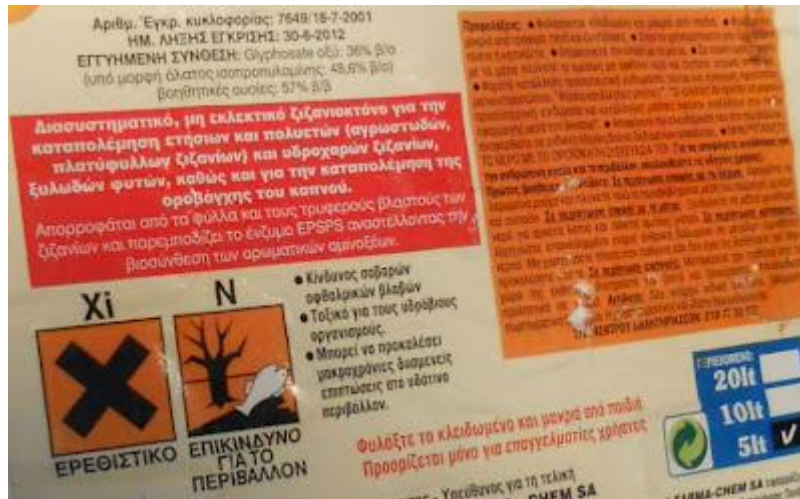
## 4.2



4.1:

### 4.2.1

- ,
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4.2:

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( . . . . , 1991)



4.2:  $q$

### 4.3

(Klaassen CD., 1996).

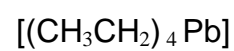




4.3:

(systemic),

(Klaassen CD., 1996).



(Korsak RJ., 1977).



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## 5.1

(1995 :4), «

» ( ., 1995).

( , 2005 :44),

2005).

( , 1994 :21),

( ., 1993).



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05 :41), «

»

(Diamond J., 2005).

, Brincat (2000 ;35)

(Brincat MP., 2000).

Grove GL (1986 :4)

(Grove GL, 1986).

## 5.2

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3.

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3 (Shima M., 1998).

Shima M.

(Shima M.,

1998).

### 5.3

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(Schwela D., 2000).



5.1: ,



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(Ackermann- Liebrich U et al., 1997).

(Ackermann- Liebrich U et al., 1997).

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( . , 2007).

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( ., 1996).

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Korsak

(Korsak RJ., 1977).

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75%

(Brincat MP., 2000).



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(Korsak R.J., 1977).

q

(Klaassen CD., 1996).

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(Brincat MP., 2000).

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(Klaassen CD., 1996).



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q



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 , 1990.
  2. ., (2005), ,  
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  3. &  
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 », 2005.
  4. , , ,  
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  5. L. Carlos Juineira, Jose Corneiro, Robert O. Kelley.  
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  6. L. Helmut.  
 , 2, , 1985.
  7. Miller G.T., :  
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 . 9 , , 1999.
  8. Miller G. T., Jr,  
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  9. ., (1995),  
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