

/ /

Cd

)

.

(

/ ( 0.34 ± 2.13 )

(1.32) / ( 2.82 -1.20)

. / (1.86 -0.81 ) /

( 20)

. / (0.93 -0.40 ) / ( 0.65 )

## DETERMINATION OF CADMIUM CONTENT IN DOMESTIC AND IMPORTED CIGARETTE IN IRAQ

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### SUMMARY

Cadmium ( Cd ) content was determined in seventeen brands of imported cigarettes and one domestic cigarette , commonly available in Iraq were taken from retail market in Baghdad , Basrah and Omarah ,By atomic absorption spectrophotometry. The mean level was (2.13 ±0.34 ) µg/g With ranged (1.20-2.82 µg/g ) dry weight .(1.32 ) µg /cigarette with Ranged ( 0.81- 1.86) µg / cigarette.

The results obtained in this study estimate quantity of ( Cd) inhaled from smokinne one paket (20) cigarettes to be in the mean ( 0.65) µg /day range of (

Cd

. (WHO 1992)

. ( Elinder and Gad-Custaf 1985 )

(% 50 25 )

.(Elinder et al . 1983 ) ( % 10 1)

, (1400 600 )

( Ebisiske et al. 2004 )

. ( Myers 1990)

) ( Scherer and Brakemeyer 1983)

(Yue 1992) (Schmidt et al. 1985)

(Whatanbe et al. 1987

(Cekic 1998)

( 4000)

(Kleeman et al. 1999 ) ..... .

(38)

1950

(1.0 )

(2.7 )

(12)

(Hoffman and Hoffman 1997)

. (Bache et al.1987)

(Robert et al. 2003)

(Mussalo-Rouhamaa et al. 1986)

(Ikeda 1992) / (4.18 ) / (3.04)

99 -66) ( %75 ) (Navas et al 2004)

. ( Ebisike et al. 2004) (%)

(% 85 )

(Shaham et al. 1996)

( %8)

(Hertz and Hu. 1994)

(Curtis et al . 1997 )

Nishijo ) (Hoffman and Hoffman 1997 )

( et al. 1994

.

( 18)

2006

2006

( ELEGANCE )

(Aspen ) :

(Polo Clup ) ( PLEASURE-light) ( PINE -light)  
 ( RICHMAN ) (DUNHILL-light) (TRADITION)  
 ( ROYALE -light) ( ROTHMANS-Special International)  
 ( Ghamdan) (SUMER) ( ZEST-light )  
 (GOLD ) (CRAVEN) ( VENUS )  
 ( Montana -light ) ( Marlborolight) SEAL

-

.

(12 ) (<sup>0</sup> 80 )

-

(<sup>0</sup> 450 )

( 1)

-

. ( Elinder et al. 1983)

(M1)

-

( Whatman 4)

( 50 )

-

( PYE UNICAM SP 9 ) ( Atomic Absorption Spectrophotometer)

( 228 )

(2.2820 ) ( / 1000 )

-

. ( M0.1) 3CdSO4.8H2O

( 5..... 0.6 0.4 0.2 )

-

/

(1)

/

(1)

/

| / Cd<br>( 4 = n ) |      |      |      |     |     |               |    |
|-------------------|------|------|------|-----|-----|---------------|----|
|                   | /    |      |      |     |     |               |    |
| 0.24± 1.63        | 0.64 | 0.71 | 0.93 | 6.5 | 8.4 | ( Aspen )     | 1  |
| 0.41 ± 2.70       | 0.66 | 0.71 | 0.91 | 6.7 | 8.5 | (ELEGANCE)    | 2  |
| 0.44 ±2.53        | 0.60 | 0.67 | 0.89 | 6.0 | 8.4 | ( PINE )      | 3  |
| 0.27 ±1.82        | 0.56 | 0.63 | 0.82 | 6.0 | 8.4 | (PLEASURE)    | 4  |
| 0.48 ± 2.61       | 0.63 | 0.68 | 0.88 | 6.4 | 8.4 | ( Polo Club ) | 5  |
| 0.25 ±1.84        | 0.69 | 0.76 | 0.98 | 6.3 | 8.6 | (TRADITION)   | 6  |
| 0.43 ±2.23        | 0.57 | 0.64 | 0.89 | 5.7 | 8.5 | (DUNHILL )    | 7  |
| 0.35 ± 2.82       | 0.65 | 0.71 | 0.89 | 6.6 | 8.4 | (RICHMA )     | 8  |
| 0.29 ± 1.62       | 0.68 | 0.75 | 1.02 | 7.0 | 9.5 | (ROTHMANS)    | 9  |
| 0.33 ± 1.96       | 0.63 | 0.69 | 0.89 | 6.3 | 8.5 | (ROYALE )     | 10 |
| 0.36 ±2.90        | 0.54 | 0.57 | 0.86 | 5.4 | 8.2 | ( Zest )      | 11 |
| 0.28 ± 2.12       | 0.65 | 0.68 | 0.90 | 6.6 | 8.4 | ( SUMER )     | 12 |
| 0.22 ± 1.20       | 0.68 | 0.75 | 0.95 | 6.2 | 8.5 | ( Ghamdan )   | 13 |

...

|                 |      |      |      |     |      |                |    |
|-----------------|------|------|------|-----|------|----------------|----|
| $0.39 \pm 2.28$ | 0.62 | 0.66 | 0.86 | 6.6 | 8.5  | (VENUS )       | 14 |
| $0.24 \pm 1.47$ | 0.62 | 0.70 | 0.92 | 6.2 | 8.4  | (CRAVEN )      | 15 |
| $0.46 \pm 2.66$ | 0.70 | 0.78 | 0.99 | 6.3 | 8.6  | (GOLDSEAL )    | 16 |
| $0.31 \pm 1.56$ | 0.57 | 0.64 | 0.90 | 5.7 | 8.5  | ( Marlboro )   | 17 |
| $0.36 \pm 2.40$ | 0.55 | 0.60 | 0.82 | 5.8 | 8.4  | Montana )<br>( | 18 |
| $0.34 \pm 2.13$ | 0.62 | 0.68 | 0.90 | 6.2 | 8.50 |                |    |

( 8.5 ) (1)

(7.0 – 5.4 ) ( 6.2) (9.5 -8.2)

-0.82) (0.90)

(0.78 -0.57 ( 0.68) (1.02

-0.54) ( 0.62) .

. (0.70

( )

(1) . ( )

/ (2.13 )

. / (0.34±)

(1)

/ ( 2.4 )

( ) ( )

/ (1.92 ) / ( 1.96 )

(1.74 )
( )

( )
/

. ( )
/ (1.51)

)
/ (2.3)

)
(

( )
/ ( 2.82

)
( )

( 1.20 )
(

( )
. /

/ ( 2.12)

(2)
.

(20)

(Saldivar et al 1991 )

:
(2)

|      |      |      |          |   |
|------|------|------|----------|---|
|      |      |      |          |   |
|      | /    |      |          |   |
| /    |      | /    |          |   |
| 0.58 | 23.4 | 1.17 | ( Aspen) | 1 |

|      |      |      |                |    |
|------|------|------|----------------|----|
| 0.89 | 37.4 | 1.78 | (ELEGANCE)     | 2  |
| 0.57 | 30.2 | 1.51 | )<br>(PINE     | 3  |
| 0.50 | 20.2 | 1.01 | (PLEASURE)     | 4  |
| 0.82 | 32.8 | 1.64 | ( Polo Club )  | 5  |
| 0.63 | 25.2 | 1.26 | (TRADITION)    | 6  |
| 0.63 | 25.4 | 1.27 | (DUNHILL )     | 7  |
| 0.91 | 36.6 | 1.83 | RICHMAN )<br>( | 8  |
| 0.55 | 22.0 | 1.10 | (ROTHMANS)     | 9  |
| 0.61 | 24.6 | 1.23 | ROYALE )<br>(  | 10 |
| 0.78 | 31.2 | 1.56 | ( Zest )       | 11 |
| 0.68 | 27.4 | 1.37 | SUMER )<br>(   | 12 |
| 0.40 | 16.2 | 0.81 | Ghamdan )<br>( | 13 |
| 0.70 | 28.2 | 1.41 | VENUS )<br>(   | 14 |



|      |      |      |                 |    |
|------|------|------|-----------------|----|
| 0.45 | 18.2 | 0.91 | CRAVEN )<br>(   | 15 |
| 0.93 | 37.2 | 1.86 | )<br>(GOLDSEAL  | 16 |
| 0.44 | 17.6 | 0.88 | Marlboro )<br>( | 17 |
| 0.66 | 26.4 | 1.32 | ( Montana )     | 18 |
| 0.65 | 26.6 | 1.32 |                 |    |

(1.86 -0.81 )

(1.32 )

(2)

( )

.

. ( )

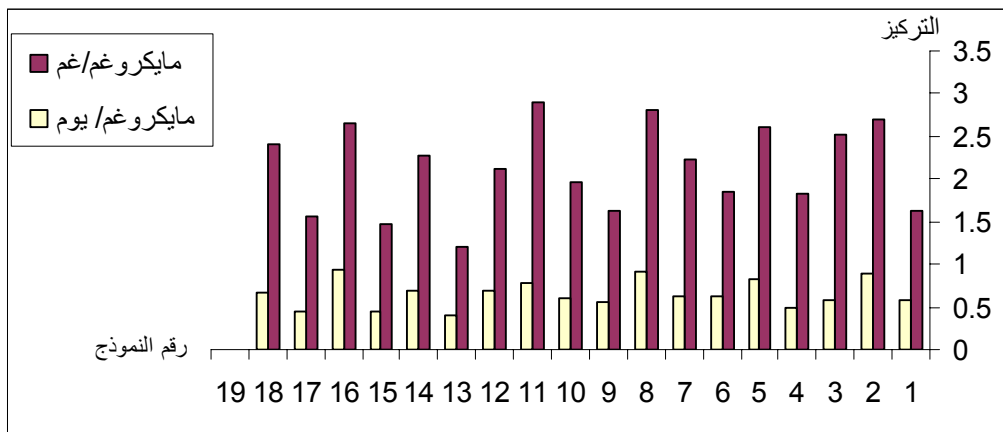
/ ( 0.93 -0.4)

/ (0.65 )

. (1 )

(1)

/



( WHO 1992 )

( 20 )

.(Robert et al . 2003 )

) / ( 4.5 )

Navase et al ) / ( 4 ) ( 59- 40

.(2004

(Ikeda 1992 )

( % 10 -5)

( % 50)

)

. ( Nishijo 1994 )

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0.40- 0.93 ) µg/ day.