

/

(0.5-0.1)

( )

(PHA)

(180-30)

0.2T

"

"

(6).

q	F	V	:	V
		$F=q(V \times B)$		
(Gauss)	$10^4 =$ (Tesla)	( $\text{Am}^{-1}$ ) H		B
		( $\text{Vsm}^{-2}$ )(Tesla)		B
		$B = \mu\mu_0 H$		$1 = \mu_0$
		:		
		$\mu < 1$		-
		$\mu > 1$		-
		$\mu \gg 1$		-

(Magnetic susceptibility)

(8).

(11):

- 1.
- 2.
- 3.
- 4.

(11):

- 1.
- 2.
3. pH
- 4.
- 5.

\* (5):

.1

.2

.3

.4

.5

.6

:

800

( )

(5).

:(1)

( / ) 30	( )	
40	25-10	
-	10-5	
4	5-1	
-	5-1	
-	5-1	
-	5-1	
60	0.01-0.001	
60	0.1-0.01	
16	6	
54	20	

:(1)

(2):

) (T) (	
( ) 0.02	.1
( ) 0.2 ( ) 0.001	.2
( ) 2 ( 24	.3
0.0015	.4 ) (

(Magnetic Resonance

2

Instrument)MRI

(T) 4

(T) 5

(T)

MRI

(11) (T) 1.5 (Nuclear Magnetic Resonance)NMR

(PHA)

(Lymphocyte blastogenic)

(Phytohemagglutinin)

:

5

(Heparinised sterile tubes)

150

:

12cm

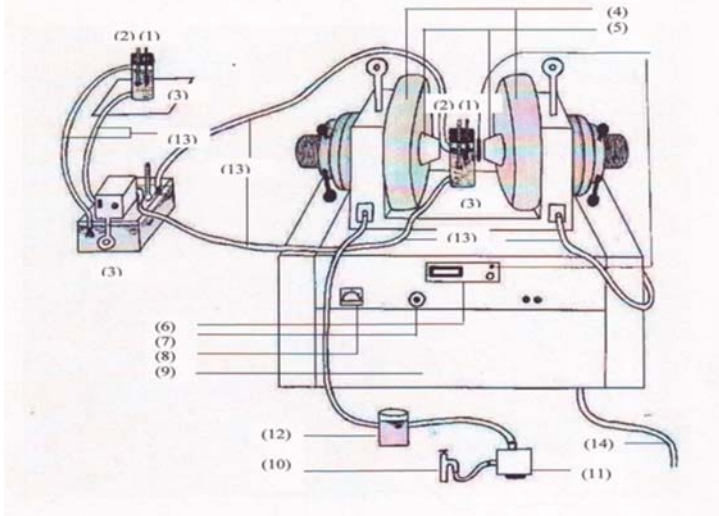
(DC electromagnet)

(1)

5cm

$37^{\circ}\text{C}\pm 0.2^{\circ}\text{C}$

(0.05G)



(1):

(5) (4) (3) (2) (1)  
 (8) (7) (6)  
 (12) (11) (10) (9)  
 (14) (13) ( )

:

:

(7) Furtheretal

T

180 120 60 30 (0.1-0.5)

T

(Phytoheamagglutinin) (PHA)

72

180 120 60 30 (0.2)

(Slides)

37

الخلايا المنحولة  
 $100 \times \frac{\text{الخلايا المنحولة} + \text{الخلايا غير المنحولة}}{\text{الخلايا المنحولة}}$



60

(0.1- 0.5) T

(3 )

(3).

(DNA)

(9)

(LymphOblast)

)

(10)

(  
ATpase

(PHA)

T

180 120 60 30

(0.2)

(4 )

T-Cell

PHA

PHA

PHA

PHA

)

(4).

(3):

عدد الخلايا للمفاوية المتحولة %						عدد التجارب
0.5T	0.4T	0.3T	0.2T	0.1T	السيطرة	
الفترة الزمنية للتعرض = 30 دقيقة						
62	62	62	63	58	36	1
54	52	51	56	49	28	2
57	59	57	58	52	33	3
58	57	55	59	53	32	المعدل
±4.0	±5.1	±5.5	±3.6	±4.5	± 4.0	الانحراف المعياري
الفترة الزمنية للتعرض = 60 دقيقة						
64	62	64	67	59	36	1
62	59	61	60	56	28	2
61	58	60	65	59	33	3
63	60	62	64	58	32	المعدل
±1.5	±2.0	±2.0	±3.6	±1.7	± 4.0	الانحراف المعياري
الفترة الزمنية للتعرض = 120 دقيقة						
69	65	68	69	62	36	1
64	60	62	63	59	28	2
60	59	62	67	63	33	3
64	61	64	66	61	32	المعدل
±3.6	±3.2	±3.4	±3.0	±2.0	± 4.0	الانحراف المعياري

المجلة العراقية لبحوث السوق وحماية المستهلك مجلد (2) عدد (3) 2010.

الفترة الزمنية للتعرض = 180 دقيقة						
78	76	77	79	77	36	1
62	68	70	79	71	28	2
76	75	77	78	73	33	3

(PHA) : (4)

0.2T

عدد الخلايا للمقاومة المتحولة % والمعرضة الى 0.2T				عدد التجارب
خلايا السيطرة (c)				
35				1
28				2
41				3
35				المعدل
± 6.5				الانحراف المعياري
خلايا الفحص المحفزة بمادة الـ PHA ('T)				
63				1
61				2
74				3
66				المعدل
± 7				الانحراف المعياري
** خلايا الفحص المحفزة بمادة PHA والمعرضة الى المجال المغناطيسي ('T")				
180min	120min	60min	30min	
52	55	59	66	1
50	53	59	64	2
53	55	58	63	3
52	55	59	64	المعدل
±1.5	±1.1	±0.5	±1.3	لانحراف المعياري

\*('T) خلايا الفحص المحفزة بمادة الـ PHA

PHA

\*\* ('T")

(NMR MRI)

.1

.2

.3

.4

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## Electromagnetic Pollution

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### Abstract

This study included the investigation of the effect of static magnetic field within the range (0.1T-0.5T) on the integrity of normal healthy people leukocyte, whose blood were used for lymphocyte transformation and also test the lymphocyte transformation for Lymphocyte stimulated with phytohemagglutinine(PHA), at different time of exposure to static magnetic field. The results showed that not stimulated lymphocyte transformation cells exposed to static magnetic field are significantly increased compared to normal healthy lymphocyte (control), and decreased for lymphocyte transformation cells stimulated with PHA exposed to 0.2T static magnetic field for (30min-180min) compared to stimulated lymphocyte cells not exposed to magnetic field, the same results obtained for exposure to different time (30min-180min).