Iraqi Journal
of Cancer and
Medical Genetics

تأثير المواد المستعملة في طلاء الأخشاب في بعض مؤشرات الوراثة الخلوية والفسلجية والكيموحيوية لدى العاملين بها

الخلاصة:

(0.713%) (6.04%) (3.33%) (7.46%) (1.49%)

(P<0.05) (14.655) 100/ (15.314) 100/ (30-40) (10-17) (354.7) (P<0.05) (6745) (286.6) (7353) (P<0.05) %(58.050) %(47.464) (P<0.05) %(7.860) %(38.500) %(0.825)¡%(2.325)¡%(6.400)¡%(32.625) %(2.060) %(3.850)

U/L (41.45) U/L (83.96) (P<0.05) (24-30) (3-10) U/L (31.67) U/L (32.73) (P<0.05) (P<0.05) (U/L)¡(16.35 18.38) (40-50) (3-10) (P<0.05) (mg/dl0.183) (mg/dl 0.313)

المقدمة:

(1) (2) (3) (, 45) -Chrom (6) somal Aberration (7) (8) (9) Sister chromated (Micronuclei(10 (11)

(3) AST ALT Bilirubin (12) ALP (14) (13)

.1
.2
.3

المواد وطرائق العمل:

(50) (20)

[illegible] (15) [illegible] (15) [illegible]

التغايرات الكروموسومية *Chromosomal Aberration*

[illegible] (X 100) [illegible] (10) [illegible] (100) [illegible] (16).

[illegible] (Blast Index (BI:

[illegible] (1000) [illegible] (17) [illegible]:

معامل التحول الأرومي(BI)= [عدد الخلايا المتحولة/العدد الكلي للخلايا المحسوبة(1000)] ×100

[illegible] (Mitotic Index (MI:

[illegible] (1000) [illegible] (18) [illegible]:

معامل الانقسام (MI) =[عدد الخلايا المنقسمة /العدد الكلي للخلايا المحسوبة(1000)] ×100

طرائق عمل تحاليل الدم الخاصة بالمتغيرات الدموية:

[illegible] (19;20;21).

طرائق عمل تحاليل الدم الخاصة بالفحوصات الكيموحيوية

BioMerieux [illegible] Biolabo [illegible].

مؤشرات صحة التكاثر

[illegible]

التحليل الإحصائي *Statistical Analysis*

[illegible] CRD [illegible] Genstat 32 [illegible] (2) [illegible] (.L.S.D) [illegible] (P≤0.05) [illegible].

النتائج والمناقشة Discussion & Results

دراسة الهيئة الكروموسومية:

[illegible] (1) [illegible] (22.51%) [illegible] (16.39%) [illegible] (0.8%) [illegible] (6.12%) [illegible] (0.8%) [illegible] (1) [illegible] 47 (46+1) [illegible] (2) [illegible] (4) [illegible] (46-1) [illegible] (3) [illegible] (2) [illegible] (4) [illegible] (3) [illegible] (3) [illegible] (5) [illegible] (6) [illegible] (7) [illegible]

[illegible] (DNA) [illegible] (OH, C-H ,C=H, C=O , COOH) [illegible]:

1. [illegible]

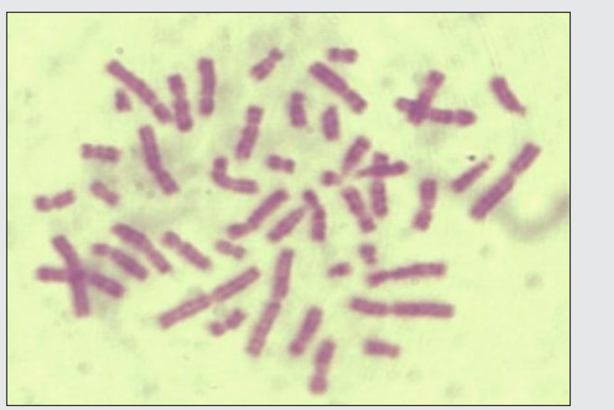
2. [illegible]

3. [illegible] glutathiones [illegible] DNA.

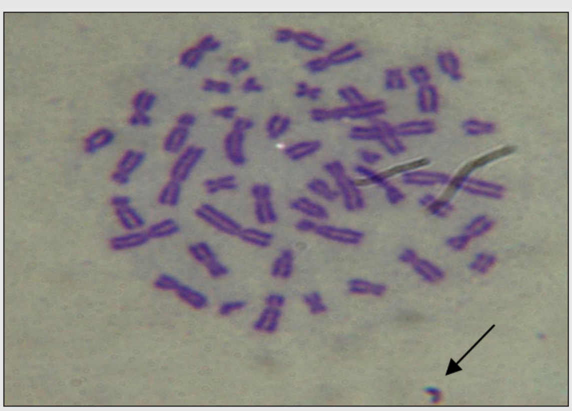
4. [illegible] DNA [illegible] DNA [illegible]

معامل التحول الأرومي Blast Index :

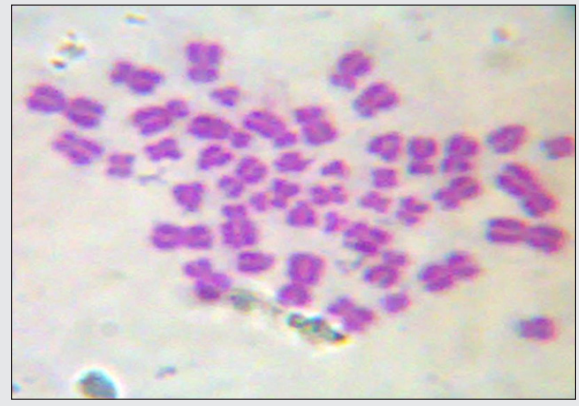
معامل الانقسام الخلوي Mitotic index :



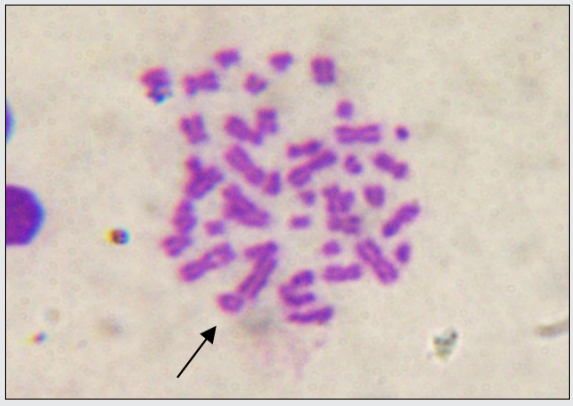
صورة (3) كروموسومات طبيعية لذكر من مجموعة السيطرة في المرحلة الإستوائية (XY ,46) باستخدام طريقة التحزم (X 1000).



صورة (4) التغايرات الكروموسومية العددية من نوع (XY, +Y,47) في العينة رقم (43) (X 1000).

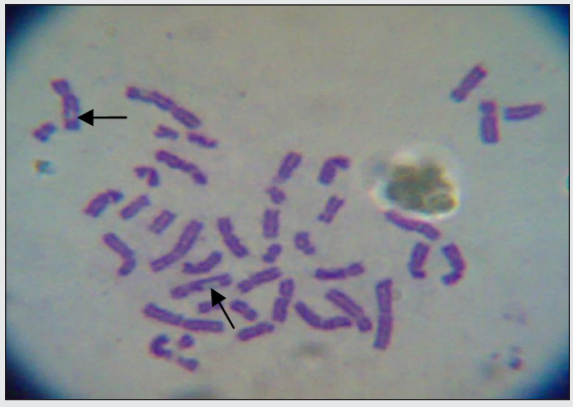


صورة (5) التغايرات الكروموسومية العددية من نوع (XY ,45) في العينة رقم (9) (X 1000)



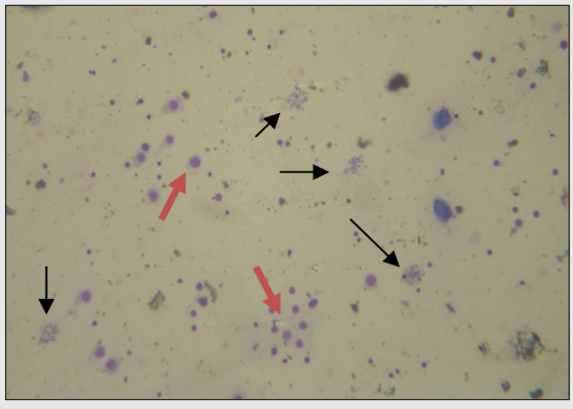
صورة (6) تغايرات كروموسومية تركيبية من النوع Ring chromosome في عينة رقم (42) (X 1000)

صورة (7) تغايرات كروموسومية تركيبية من نوع كسر كروماتيدي(XY, cht b (3,46 للعينة رقم (10) (X 1000) .



صورة (8) تغايرات كروموسومية تركيبية من نوع Gap (46, XY, chr g ; cht g)للعينة رقم (41) (1000X).

صورة (9) تغايرات كروموسومية تركيبية من نوع ثنائي المركز (XY, dic,45) للعينة رقم (8).



صورة (10) (⟵) خلايا في الطور الأرومي و(⟵)خلايا في طور الإنقسام للعينة رقم (26) (100X).

صحة التكاثر :

[illegible]

المعايير الفسلجية للدم:

تركيز الهيموكلوبين *Hb* ونسبة حجم خلايا الدم المتراصة(*PCV*):

[illegible]

[illegible]

[illegible]

أعداد صفيحات الدم *(PLT Platelet Count)*:

[illegible]

التعداد الكلي لخلايا الدم البيض *Total White blood cells (WBC)*:

[illegible]

[illegible]

معايير الدم الكيموحيوية :

تركيز انزيم الفوسفات القاعدي (ALP Concentration) :

تركيز الانزيم الناقل للحامض الأميني الإسبارتيت GOT/AST :

[illegible]

تركيز الإنزيم الناقل للحامض الأميني الألانين *GPT/ALT* :

[illegible]

البليروبين :

تركيز البليروبين الكلي *(TSB Total Serum Bilirubin)*:

[illegible]

البليروبين المباشر *(DB Direct Bilirubin)* :

[illegible]

البليروبين غير المباشر *(INDB Indtrect Bilirubin)* :

[illegible]

[illegible] (53) [illegible]

[illegible] (54) [illegible] (ASTş ALT ş ALP) [illegible] DB [illegible] ALP ş ALT ş AST [illegible] ALP [illegible] ALPş ALT [illegible] ALT ş AST [illegible] ALT [illegible]

جدول (1) النسبة المئوية للتغايرات الكروموسومية التركيبية والعددية في خلايا الدم اللمفاوية المحيطية لعينة السيطرة والعمال %

[illegible]	[illegible] %				[illegible] %				[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
0.8	0	0	0	0.8	0	0	0.8	0	[illegible] 8 =n
22.51	6.12	4.12	2	16.39	3.09	2	6.2	5.1	[illegible] 14 =n

جدول (2) النسبة المئوية لمعامل التحول الأرومي ومعامل الانقسام في خلايا الدم اللمفاوية المحيطية لعينة السيطرة والعمال

[illegible]	[illegible]	[illegible]
0.713	6.04	[illegible] 8 = n
1.669	17.6	[illegible] 14 = n

جدول (3) النسبة المئوية لصحة التكاثر لعينة السيطرة والعمال

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.33	3.33	93.34	[illegible] n 12 =

جدول (4) معدلات تراكيز الهيموكلوبين ونسبة حجم خلايا الدم المتراصة واعداد صفيحات الدم لعينات السيطرة والعمال

L.S.D. P<0.05	PLT count*10^3 /mm^3		L.S.D. P<0.05	PCV %		L.S.D P<0.05	Hb Concentration(mg/di)		توزيع العينات	
	[illegible]	[illegible]		[illegible]	السيطرة		العمال	السيطرة		
a. 0.54	342.8	286.6	a. 1.67	45.100	44.445	a. 0.769	15.260	14.655	3-10	مدة الخدمة (السنة)
b. 192	402.4	286.6	b. 4.75	48.063	44.445	b. 1.98	16.675	14.655	10-17	
	412.4	286.6		43.500	44.445		14.633	14.655	17-24	
	173.3	286.6		40.667	44.445		14.267	14.655	24-30	
	354.7	286.6		45.020	44.445		15.314	14.655	المعدل	
68.94 .a	372.7	258.2	s.n .a	45.308	43.090	a .n.s	15.411	14.190	30 – 17	الفئة العمرية (السنة)
b213.5 .	399.9	330.0	b5.2.	46.667	46.000	b2.43 .	15.766	15.460	40 -30	
	227.6	300.0		41.444	45.600		14.277	14.780	50 - 40	
	354.7	286.6		45.020	44.445		15.314	14.655	[illegible]	
131.5 .a	379.6	277.8	3.305 .a	44.460	44.100	a1.5 .	15.396	14.567	[illegible]	المنطقة
b210 .	369.1	344.6	b5.29 .	47.000	45.000	b. 11.67	15.935	15.114	[illegible]	
	246.3	205.0		42.562	44.250		13.737	14.050	[illegible]	
	354.7	286.6		45.020	44.445		15.314	14.655	[illegible]	

a = [illegible] L.S.D. [illegible] . b = [illegible] L.S.D. [illegible]

جدول رقم(5)معدلات اعداد خلايا الدم البيض الكلي والتفريقي لعينات السيطرة والعمال.

توزيع العينات		WBC count*10³ /mm³		L.S.D. P<0.05	Neutrophils %		L.S.D. P<0.05	Lymphocytes%		L.S.D. P<0.05	Monocytes %		L.S.D. P<0.05	Eosinophils%		L.S.D. P<0.05	Basophils %		L.S.D. P<0.05
		السيطرة	العمل		السيطرة	العمل		السيطرة	العمل		السيطرة	العمل		السيطرة	العمل		السيطرة	العمل	
مدة الخدمة (السنة)	٣ - ١٠	6745	6888	a. 765.9	58.050	45.223	a. 3.7	32.625	40.100	a. 3.24	6.400	7.967	a. 1.17	2.325	4.017	a. 0.949	0.825	2.283	a. 0.52
	١٠-١٧	6745	8494	b. 2213	58.050	51.937	b.10.77	32.625	36.125	b. 9.57	6.400	7.250	b. . 3.47	2.325	2.812	b. 2.78	0.825	1.750	b. . 1.55
	١٧-٢٤	6745	8050		58.050	49.222		32.625	36.722		6.400	7.444		2.325	4.722		0.825	1.889	
	٢٤-٣٠	6745	6867		58.050	52.667		32.625	34.167		6.400	9.667		2.325	2.333		0.825	1.167	
	المعدل	6745	7353		58.050	47.464		32.625	38.500		6.400	7.860		2.325	3.850		0.825	2.060	
الثقة العمرية (السنة)	١٧-٣٠	٥٩٣٠	7333	a. n.s	57.450	45.077	a. 12.16	34.250	40.673	a. 10.67	5.750	7.962	a. n.s	2.200	3.692	a. n.s	0.950	1.981	a. 1.5
	٣٠-٤٠	7240	7320	b . n.s	56.100	51.213	b. 12.11	32.200	36.500	b . 10.6	8.700	7.167	b. 3.119	2.100	3.067	b. 3.069	0.800	2.233	b. 1.78
	٤٠-٥٠	7880	7467		61.200	48.111		29.800	35.556		5.400	8.722		2.800	5.611		0.600	2.000	
	المعدل	6745	7353		58.050	47.464		32.625	38.500		6.400	7.860		2.325	3.850		0.825	2.060	
المنطقة	خالدية	5978	7210	a. 1515	55.111	48.368	a. 7.3	34.778	39.120	a. 6.47	7.667	7.040	a. 6.47	2.111	3.120	a. 1.87	0.889	1.980	a. 1.04
	فلوجة	٨٠٧١	٨٢٢٦	b. 2308	58.286	49.824	b. 11.44	34.357	36.471	b. 10.25	4.286	7.824	b. 3.51	2.214	3.441	b. 2.76	0.786	1.971	b. 1.73
	رمادي	٦١٥٠	٥٩٤٤		64.250	39.625		24.750	40.875		7.250	10.500		3.000	7.000		0.750	2.500	
	المعدل	٦٧٤٥	٧٣٥٣		58.050	47.464		32.625	38.500		6.400	7.860		2.325	3.850		0.825	2.060	

جدول (6) تركيز انزيم الفوسفات القاعدي وانزيم الناقل الاسبارتيت وانزيم الناقل للالانين لعينات السيطره والعمال.

توزيع العينات		ALP Concentration (U/L)		L.S.D. P<0.05	AST Concentration (U/L)		L.S.D. P<0.05	ALT Concentration (U/L)		L.S.D. P<0.05
		السيطرة	العمل		السيطرة	العمال		السيطرة	العمال	
مدة الخدمة (السنة)	٣ - ١٠	41.45	80.09	a. 14.4	18.38	33.18	a. 4.68	16.35	32.37	a. 5.19
	١٠ - ١٧	41.45	74.01	b. 36.8	18.38	30.56	b. 13.95	16.35	34.19	b. 15.4
	١٧ - ٢٤	41.45	74.09		18.38	35.39		16.35	27.83	
	٢٤ - ٣٠	41.45	178.83		18.38	26.00		16.35	23.83	
	المعدل	41.45	83.96		18.38	32.73		16.35	31.67	
الثقة العمرية (السنة)	١٧ - ٣٠	41.95	81.80	a. 47.4	19.55	32.19	a. 15.3	17.45	31.69	a. 17.06
	٣٠ - ٤٠	45.39	70.19	b. 46.2	20.00	33.93	b. 15.78	15.30	30.70	b. 17.5
	٤٠ - ٥٠	36.54	113.13		14.40	32.28		15.20	33.22	
	المعدل	41.45	83.96		18.38	32.73		16.35	31.67	
المنطقة	خالدية	52.98	79.97	a. 28.6	13.33	36.52	a. 9.27	12.22	29.24	a. 10.67
	فلوجة	29.65	87.21	b. 47.16	27.36	24.97	b. 13.63	24.86	33.09	b. 16.4
	رمادي	36.18	89.55		14.00	37.37		10.75	36.25	
	المعدل	41.45	83.96		18.38	32.73		16.35	31.67	

a = تمثل قيمة L.S.D. لمعدلي السيطرة والعمال. b = تمثل L.S.D. للمقارنة بين عينات السيطرة والعمال

جدول (7) تركيز البليروبين الكلي والمباشر وغير المباشر لعينات السيطرة والعمال.

توزيع العينات		TSB Concentration (mg/dl)		L.S.D P<0.05	DB Concentration (mg/dl)		L.S.D. P<0.05	In DB Concentration (mg/dl)		L.S.D. P<0.05
		السيطرة	العمال		السيطرة	العمال		السيطرة	العمال	
مدة الخدمة (السنة)	٣-١٠	0.7360	0.7400	a. 0.139	0.1834	0.3442	a. 0.065	0.5525	0.3957	a. 0.126
	١٠-١٧	0.7360	0.8325	b. . 0.414	0.1834	0.2579	b. 0.19	0.5525	0.5913	b. 0.37
	١٧-٢٤	0.7360	0.7156		0.1834	0.3122		0.5525	0.5144	
	٢٤-٣٠	0.7360	0.4467		0.1834	0.1500		0.5525	0.2967	
	المعدل	0.7360	0.7328		0.1834	0.3130		0.5525	0.4424	
الفئة العمرية (السنة)	١٧ – ٣٠	0.9380	0.8062	a. n.s	0.1880	0.3337	a. 0.21	0.7500	0.4724	a. n.s
	٣٠ – ٤٠	0.5100	0.7087	b. n.s	0.1758	0.3202	b. n.s	0.3340	0.3973	b. n.s
	٤٠ – ٥٠	0.5580	0.5578		0.1818	0.2411		0.3760	0.4278	
	المعدل	0.7360	0.7328		0.1834	0.3130		0.5525	0.4424	
المنطقة	خالدية	0.7711	0.6948	a. 0.277	0.1867	0.2859	a. 0.128	0.5844	0.4145	a. 0.249
	فلوجة	0.4400	0.8106	b. 0.42	0.1811	0.3214	b. 0.21	0.2586	0.4888	b. 0.33
	رمادي	1.1750	0.6862		0.1800	0.3800		0.9950	0.4313	
	المعدل	0.7360	0.7328		0.1834	0.3130		0.5525	0.4424	

a = تمثل قيمة L.S.D. لمعدلي السيطرة والعمال. b = تمثل L.S.D. للمقارنة

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Effect of the Wood Paint Materials on Some Cytogenetic , Physiological and Biochemical Parameters of Wood Painters

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Summary:

The study has been applied to 50 blood specimens from randomly selected wood painters from three towns in Al-Anbar province: Khalidiya, Falluja and Ramadi , starting from January 2007 to August chosen2008 . In addition, 20 specimens were taken from normal individuals as control group. This study involved analysis of the chemical materials found in wood paint composition their effects on the cytogenetic of those who are subjected to them through the use of circulating blood lymphatic cells. In other words, this research dealt with the study of (karyotype, the blast index and mitotic in-

dex) . The study also focused on the effect of paint materials on the physiological standards of blood , some biochemical examinations were included.

Cytogenetic analysis showed the following results: The occurrence of structural and numerical aberration in workers subjected to wood paint materials with an average (22.51%) as compared to the control group (0.8%). Significant increase (P>0.05) of the blast index percent(%17.6) and Mitotic index (%1.669) occurred in wood painters as compared to that of the control group in which blast index (%6.04) and Mitotic index (%0.713). Results showed abnormality in reproductive health in wood painters. The ratio of children death was (7.46%) as compared with that of the control group which represented (3.33%)..While malformation average was (1.49%) in wood painters' children, there was no malformation in control group children.In terms of the service period, there was a significant increase (P>0.05) in hemoglobin concentration in workers where its ratio represents (15.314) mg/100ml as compared to that of the control group (14.655)mg/100ml . In addition, the age and the work location have nothing to do with the increase of the hemoglobin concentration. The results of the study did not show a relation between the rate of PCV in workers and the service period, age categories and the work location. Furthermore, the study pointed out that there was a significant increase in the hemoglobin concentration and the rate of PCV in workers whose service period is between (10-17) years and age categories (30-40) years as compared to the control group. In terms of service , the study showed a significant increase (P>0.05) on the number of PLT with an average (354.7) per mm3 and on the total number of WBC with an average (7353) cells per mm3 to wood painters as compared to the control group in which the number of PLT was with an average (286.6) cells per mm3 and the number of WBC was (6745) cells per mm3. The study did not show a relation between age categories and work location on one hand and the number of PLT and WBC on the other hand. The results showed significant decrease (P>0.05) in the nutrophils ratio in wood painters wast represented (47.464)% as compared to that of the control group (58.050)% depending on the service period. On the contrary, age categories and work location did not show such effect. The results revealed that a significant increase (P>0.05) in the number ratio of the lymphocytes (38.50)% , monocytes (7.86)% , acidophil (3.85)% and basophiles (2.06)% in wood painters as compared to the control group (32.62)% , (6.40)% , (2.32)% and (0.82)% . On the contrary, age categories and work location did not show this increase.

The results of biochemical examinations showed significant increase in ALP concentration in wood painters with an average (83.96 U/L) as compared to the control group (41.45 U/L). In addition, ALP concentration increased in workers whose service period is between (3-10) years and (24-30) years as compared to the control group. Moreover, the results did not show a relation between the increase of ALP according to age categories and work location. In terms of the service period, the study showed significant increase (P<0.05) in AST with an average (32.73 U/L) and ALT with an average (31.67 U/L) in wood painters as compared to the control group where AST represented (18.38 U/L) and ALT represented (16.35 U/L). Furthermore, the study showed significant increase in AST and ALT concentration (P>0.05) in workers whose service period is between (3-10) years and age categories between (40-45) years, also results showed significant ALP & ALT increase in wood painters from Khalidiya and Ramadi as compared to the control group.The study showed no significant differences in the total bilirubin and indirect bilirubin between the wood painters and the control group according to the service period, work location and age categories. At the same time, and in terms of the service period and work location, the results showed significant increase (P<0.05) in the direct bilirubin concentration in the painter group (0.313 mg/dl) as compared to the control group (0.183mg/dl) .