

Estimation of Different Biochemical Intensities in Drinking Water from Eastern Region of Lahore City

Source	DF	Alk	BOD	CO ₃ ⁻²	COD	Ca ⁺²	Cl ⁻	DO	EC	HCO ₃ ⁻	Mg ⁺²	SO ₄ ⁻²	TDS	TH	TSS	pH
Samples	14	98418.2*	0.9253*	69.857*	9317.19*	30008.3*	111275*	0.3606*	2.1423*	39383.4*	16106*	114096*	748180*	2116754*	4.2328*	0.4394*
Error	15	4.9	0.05511	0.1997	8.54	4.9	13	0.64071	0.05511	2.3	9	13	5	19	0.43431	0.64071
Grand mean		749.23	1.648	6.236	456.31	573.37	583.57	4.946	3.806	775.93	767.13	657.7	2940.3	3681.2	4.4927	7.806
Standard error		4.7204	0.5004	0.9525	6.2276	4.7204	7.7348	1.7061	0.5004	3.2133	6.2276	7.7348	4.7204	9.2419	1.4047	1.7061

*Significant at 5% probability level, Alk= Alkalinity, BOD = Biological Oxygen demand, COD= Chemical Oxygen demand, DO= Dissolved Oxygen, EC= Electrical conductivity, TDS = Total dissolved salts, TH= Total hardness, TSS= Total suspended solids

Table 1. Analysis of variance for various studied biochemical traits of different drinking water samples

Samples	Alk (ppm)	BOD (ppm)	CO ₃ ⁻² (ppm)	COD (ppm)	Ca ⁺² (ppm)	Cl ⁻ (ppm)	DO (ppm)	EC (ms/cm)	HCO ₃ ⁻ (ppm)	Mg ⁺² (ppm)	SO ₄ ⁻² (ppm)	TDS (ppm)	TH (ppm)	TSS (ppm)	pH
A	832.57d	2.166ab	0.316i	466.97g	734.57c	427.57h	4.166a	4.266cd	898.07d	1155.1b	972.57b	2251.6m	3803.1f	3.466ef	7.666a
B	581.57k	1.866b	18.316a	442.87h	516.57h	387.57j	4.566a	3.966de	977.07a	1287.1a	997.57a	3279.6e	2934.1k	4.566cde	7.766a
C	972.57c	1.766b	15.316b	574.37a	579.57e	331.57m	4.466a	4.866ab	797.07h	1077.1c	877.57d	3069.6g	3013.1j	4.966cd	7.366a
D	778.57f	2.666a	13.316c	562.07b	474.57k	887.57c	5.366a	3.966de	753.07j	982.07d	797.57f	2281.6k	4153.1e	4.666cde	8.066a
E	592.57j	2.666a	0.316i	483.07e	803.57a	789.57e	5.466a	3.066g	782.07i	882.07f	834.57e	2301.6i	4155.1e	5.766bc	8.466a
F	644.57i	1.916b	9.316d	392.17k	479.57j	746.57f	4.366a	2.966gh	677.07k	802.07g	382.57l	2825.6h	5853.1a	7.666a	8.266a
G	691.57h	1.816b	7.316f	389.27kl	522.57g	546.57g	4.866a	3.666ef	842.07f	535.07j	473.57k	3661.6d	3088.1i	4.766cde	7.466a
H	972.57c	2.266ab	7.516ef	433.17i	512.57h	372.57k	5.066a	3.266fg	563.07n	683.07i	505.57j	3694.6c	3753.1g	3.466ef	7.366a
I	791.57e	2.116b	8.416de	545.17c	715.57d	433.57h	5.366a	4.666bc	905.07c	973.07e	580.57i	3732.6a	3133.1a	3.666def	7.266a
J	757.57g	0.666c	5.316g	475.27f	787.57b	933.57a	5.666a	5.066ab	958.07b	785.07h	773.57g	3232.6f	4433.1d	6.466ab	8.666a
K	1151.6 a	0.786c	4.816g	413.57j	534.57f	839.57d	4.866a	5.266a	812.07g	501.07k	925.57c	3703.6b	4561.1c	5.366bc	8.466a
L	1076.6b	1.096c	0.316i	517.57d	535.57f	915.57b	5.066a	4.966ab	882.07e	458.07m	653.57h	3229.6f	5061.1b	4.566cde	7.866a
M	487.57l	0.916c	2.316h	383.57lm	453.57m	402.57i	4.866a	2.366i	581.07m	483.07l	333.57n	2264.6l	2431.1m	2.566f	7.466a
N	442.57n	0.976c	0.316i	385.57lm	463.57l	380.57j	5.066a	2.266i	632.07l	458.07m	373.57m	2281.6k	2378.1n	2.966f	7.366a
O	464.57m	1.036c	0.316i	380.07m	486.57i	358.57l	4.966a	2.466hi	579.07m	445.07n	383.57l	2294.6j	2468.1l	2.466f	7.566a
WHO STANDARDS	250 - 500	<1.0	0	4	200	250	4 - 6	0.5 - 1.5	250	150	400	500- 1500	500	0	6.5 - 8.5

Alk= Alkalinity, BOD = Biological Oxygen demand, COD= Chemical Oxygen demand, DO= Dissolved Oxygen, EC= Electrical conductivity, TDS = Total dissolved salts, TH= Total hardness, TSS= Total suspended solids

Table 2. Mean performance of various studied biochemical traits of different drinking water samples



Traits	Alk	BOD	CO ₃ ⁻²	COD	Ca ⁺²	Cl ⁻	DO	EC	HCO ₃ ⁻	Mg ⁺²	SO ₄ ⁻²	TDS	TH	TSS
BOD	0.0282													
P<0.05	0.9205													
CO ⁻²	0.1442	0.3643*												
P<0.05	0.608	0.1819												
COD	0.4861*	0.434*	0.3837*											
P<0.05	0.0662	0.106	0.158											
Ca ⁺²	0.1422	0.2225	-0.2016	0.4177*										
P<0.05	0.6132	0.4255	0.4713	0.1213										
Cl ⁻	0.355*	-0.0615	-0.12	0.2359	0.2371									
P<0.05	0.1941	0.8275	0.6701	0.3973	0.3949									
DO	-0.0578	-0.0553	-0.1996	0.2361	0.3151*	0.4486*								
P<0.05	0.8379	0.8449	0.4756	0.3969	0.2526	0.0935								
EC	0.8054*	-0.0608	0.2965*	0.6326*	0.4247*	0.4254*	0.0621							
P<0.05	0.0003	0.8296	0.2833	0.0114	0.1146	0.1139	0.826							
HCO ⁻³	0.3349*	0.0728	0.2937*	0.4841*	0.5781*	0.3334*	0.0334	0.774*						
P<0.05	0.2224	0.7965	0.288	0.0674	0.024	0.2246	0.9059	0.0007						
Mg ⁺²	0.0625	0.6278*	0.6337*	0.5641*	0.4209*	-0.1368	-0.2655	0.3301*	0.5454*					
P<0.05	0.8249	0.0122	0.0112	0.0285	0.1182	0.6268	0.3389	0.2295	0.0355					
SO ⁻²	0.4776*	0.2657	0.3484*	0.5521*	0.4921*	0.2526	-0.1113	0.6936*	0.7142*	0.6825*				
P<0.05	0.0718	0.3385	0.2032	0.0329	0.0624	0.3637	0.6929	0.0041	0.0028	0.005				
TDS	0.5973*	-0.0744	0.3733*	0.1098	0.058	0.0734	0.0868	0.5848*	0.386*	-0.0087	0.1296			
P<0.05	0.0187	0.7922	0.1705	0.6969	0.8373	0.795	0.7583	0.022	0.1552	0.9755	0.6453			
TH	0.5038*	0.1357	-0.0076	0.1851	0.1912	0.7919*	0.0125	0.4003*	0.2413	0.0498	0.2196	0.191		
P<0.05	0.0555	0.6297	0.9786	0.5091	0.4947	0.0004	0.9648	0.1393	0.3863	0.86	0.4316	0.4953		
TSS	0.2528	0.1323	0.3074*	0.1669	0.2818	0.675*	0.0275	0.3773*	0.3891*	0.2398	0.2935	0.2529	0.7879*	
P<0.05	0.3633	0.6383	0.265	0.5521	0.3089	0.0058	0.9224	0.1656	0.1517	0.3894	0.2883	0.3632	0.0005	
pH	0.162	-0.0919	-0.0808	0.0305	0.3652*	0.8474*	0.2914*	0.3027*	0.3076*	0.0387	0.3959*	-0.0442	0.712*	0.7515*
P<0.05	0.5639	0.7446	0.7748	0.914	0.1808	0.0001	0.292	0.2728	0.2647	0.8909	0.1441	0.8756	0.0029	0.0012

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Table 3. Correlation among various studied biochemical traits of different drinking water samples

