



CHAPTER (4)

RESULTS AND DISCUSSIONS

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1. Results of Sand

4.1.1. Mechanical analysis

In the present study, mechanical analysis was carried out on twenty eight selected sand samples representing their occurrences in the three rock units as the following:

- 1- Stabilized Sand dunes, were represented in localities VI (samples no. 37 & 38), VIII (sample no. 48) and IX (sample no. 49)
- 2- Diba Formation, was represented in Gravely Member (samples from no.1-6 at locality I and samples from no. 7-16 at locality II) and Sandy Member (samples from no. 17-22 at locality III).
- 3- Hagif Formation, was represented in Clastic Member at locality VII (samples no. 39 & 40).

The calculated grain size parameters for the studied sand samples according to Folk and Ward (1957) were given in table (1)

4.1.1.1. Mean size

The range and average of the mean size of the analyzed sand samples from each rock unit among the different size classes (from pebble to fine sand) are given in table (2). However, 28.57 % of the studied samples possess Mz values within medium sand size (8 samples), 25.00 % of the samples fall

Table (1): Percentiles and size parameters calculated according to Folk and Ward (1957)

Rock Unit	locality	Sample No.	Percentiles							Statistical Grain Size Parameters				
			Ø5	Ø16	Ø25	Ø50	Ø75	Ø84	Ø95	Mz	σ _I	SKi	KG	KG'
Stabilized Sand Dunes	VI	37	-1.58	-0.49	0.08	0.87	1.62	1.88	3.75	0.75	1.40	-0.03	1.42	0.59
		38	-3.85	-3.51	-3.23	-0.10	1.61	2.09	2.92	-0.51	2.43	-0.16	0.57	0.37
	VIII	48	-0.55	0.17	0.46	1.31	2.35	2.78	3.56	1.42	1.28	0.11	0.89	0.47
		IX	49	-0.47	0.19	0.46	1.26	2.30	2.74	3.53	1.40	1.24	0.15	0.89
Diba Fm.	I	1	-5.19	-4.84	-4.65	-3.81	-1.82	-0.15	2.95	-2.93	2.41	0.61	1.18	0.54
		2	-2.54	-1.75	-1.49	-0.77	0.82	1.51	3.75	-0.34	1.77	0.42	1.12	0.53
		3	-4.24	-3.52	-2.76	-1.18	0.59	1.29	3.26	-1.14	2.34	0.11	0.92	0.48
		4	-2.72	-1.46	-1.00	0.02	1.33	1.90	4.15	0.15	1.88	0.16	1.21	0.55
		5	-5.39	-5.13	-4.88	-4.04	-1.73	-0.66	1.26	-3.28	2.12	0.55	0.86	0.46
		6	-1.84	-1.04	-0.64	0.32	1.36	1.86	3.65	0.38	1.56	0.14	1.13	0.53
	II	7	-3.46	-2.49	-1.03	1.26	2.58	3.19	4.98	0.65	2.70	-0.22	0.96	0.49
		8	-1.71	-0.71	-0.15	1.09	2.00	2.49	4.36	0.96	1.72	-0.02	1.16	0.54
		9	-4.15	-3.18	-1.52	0.54	1.63	1.96	3.06	-0.23	2.38	-0.37	0.94	0.48
		10	-3.67	-2.58	-1.28	0.58	1.54	1.91	2.91	-0.03	2.12	-0.35	0.96	0.49
		11	-1.80	-0.94	-0.38	0.71	1.44	1.78	2.62	0.52	1.35	-0.17	0.99	0.50
		12	-4.53	-3.97	-3.64	-0.94	0.99	1.31	2.38	-1.2	2.37	-0.09	0.61	0.38
		13	-1.91	-0.59	-0.03	0.71	1.38	1.79	2.64	0.64	1.28	-0.12	1.32	0.57
		14	-3.75	-3.03	-2.49	-1.20	0.75	1.29	2.38	-0.98	2.01	0.16	0.77	0.44
		15	-5.36	-5.03	-4.81	-4.05	-1.49	0.85	1.97	-2.74	2.58	0.65	0.90	0.47
		16	0.28	1.09	1.29	1.69	2.01	2.25	2.72	1.68	0.66	-0.09	1.39	0.58
	III	17	-0.72	0.62	1.34	2.60	3.36	3.59	3.87	2.27	1.44	-0.39	0.93	0.48
		18	0.60	1.51	2.00	2.74	3.39	3.61	3.87	2.62	1.02	-0.24	0.97	0.49
		19	1.57	0.15	0.63	1.43	2.09	2.56	3.33	1.38	1.35	-0.14	1.38	0.58
		20	-1.66	0.15	0.63	1.43	2.09	2.56	3.33	1.38	1.36	-0.15	1.40	0.58
		21	-0.75	0.26	0.93	1.51	2.41	3.15	3.73	1.64	1.40	0.06	1.24	0.55
		22	0.03	1.12	1.51	1.87	2.72	3.06	3.70	2.02	1.04	0.11	1.24	0.56
igif Fm.	VII	39	1.06	1.41	1.7	0.0	2.73	2.89	3.50	1.43	1.74	-1.39	0.97	0.49
		42	-1.55	0.40	1.06	1.74	2.59	2.93	3.64	1.69	1.42	-0.16	1.39	0.58

Table (2): Range and average size distribution of the studied sand samples among size classes

Rock Unit	Locality	Number Of Samples	Pebbles		Granule		Very coarse Sand		Coarse Sand		Medium Sand		Fine Sand		Range Of Mz Ø	Average Of Mz Ø
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Stabilized	VI	2	---	---	---	50	1	50	1	50	---	---	---	-0.51 To 0.75	0.12	
Sand	VIII	1	---	---	---	---	1	100	1	100	---	---	---	1.42	1.42	
Dunes	IX	1	---	---	---	---	1	100	1	100	---	---	---	1.40	1.40	
Diba Fm.	I	6	2	33.33	1	16.67	1	16.67	2	33.33	---	---	---	-3.28 To 0.38	-1.19	
	II	10	1	10	1	10	3	30	4	40	1	10	---	-2.74 To 1.68	-0.07	
	III	6	---	---	---	---	---	---	---	---	3	50	3	1.38 To 2.77	1.89	
Hagif Fm.	VII	2	---	---	---	---	---	---	---	---	2	100	---	1.43 To 1.69	1.56	