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Effect of Dried and Land Use on the Water Logged Soil Profile Development, El-Manzala Area, Egypt

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THE AREA under investigation bounded by longitudes 32° 10¯ and 32° 20¯ east and latitudes 31° 10¯ and 32° 00¯ north. Ten soil profiles representative the logged soils (1, 2), dried soils (3, 4) used soil for cultivated for 5 years (5, 6) and used soil for cultivated for 10 year (7, 8, 9 and 10). The texture changed from sandy to clay in logged soils and dried soils while it is ranged between loam and clay in the used soil for cultivated soil. Cation exchange capacity values ranged between 1.2 and 61.79 Cmol/kg and varied according to the variation in the soil texture. $CaCO_3$ content ranged between 3.89 and 80.00%. O.M content ranged between 0.41 and 5.26% due to the effect of fish pond. Gypsum content ranged between 2.36 and 9.66 %. EC values varied from layer to another and ranged between 15.20 and 400.00 dS/m and the high values in the dried soil. Based on the morphological description and analytical data, the soils classified as Typic Fluvaquents, Typic Haploxererts, Aquic Haplargids, Typic Xerofluvaquents, Typic Haplargids, Typic Xerofluvents.

The micromorphological description as skelton grains, plasma fabric, voids, pedological features and microstructure indicated that the soil profile of the used soils is the most developed in comparison the logged and dried soils which it is clear from the skelsepic, intertextic are dominated in the surface layers while agglomero and porphyro are dominated in the deep layers in the logged soils, while in the dried soil isotropic porphro, vosepic, agglomero, skilasepic and vosepic dominated in the surface layers and in the deep layer it is the single grains is the dominated. The variation in the plasmic fabric between the logged and dried soil refered to the parent material and it is stratification, while in the used soils have porphyro, agglomero, vosepic and skelsepic are dominant in the surface and deep layers which could be refered to the used and management of soils. Voids in the logged soil is packing and mamulated vughs while chamber, plan, vughs and packing are dominated in dried soils and vughs, packing, mamulated vughs channels and skew plans are dominted in used soils. Pedological features in the logged soils are longititude fossels of gypsum, rounded nodules of $CaCO_3$ and fossels, globular of iron oxids and organic matter, ferrovosepic and intercalary of gypsum, while in dried soils it is rounded fossels of $CaCO_3$ and calcitans and in used soil are broad calcitans, ferroorganic, intercalary of gypsum, longitude fossels of $CaCO_3$, original fossels plets, gypsum and Globular of ferromangans. The variation in the pedological features refered to the parent material stratification, land use, and management. Microstructure is a pedal and secondary in the logged and dried while in the used soils are secondary and teraturay. From the previous data clear that the used soils are more developed than the logged and dried soils.

Keywords: Water logged, Dried soil, Micromorphological, Pedological features, Management, Macro structure.

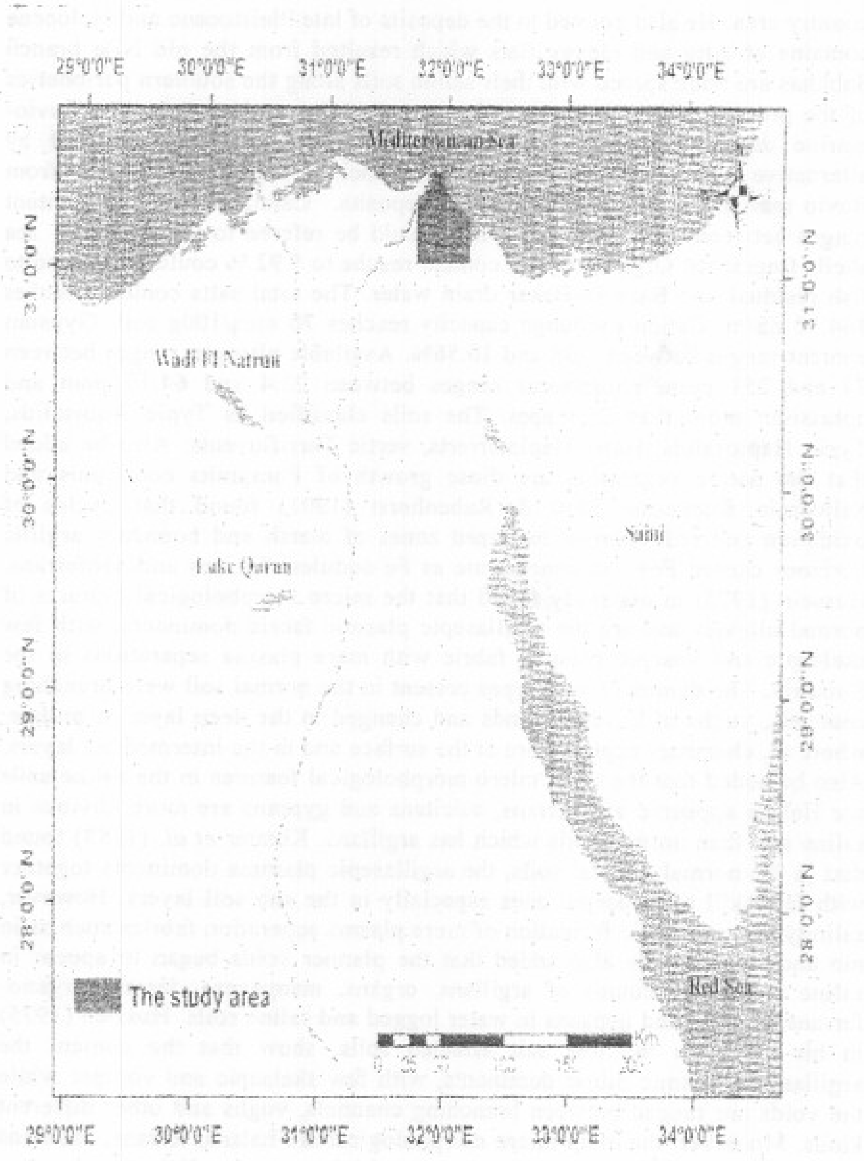
The soil morphological and micromorphological data are used to predict certain aspects of soil development. There many approach can be distinguished as the following:- the first approach is a direct one relating for example to the occurrence of coatings on natural soil aggregates which may be indicative of flow channels in the soil or to the occurrence of mottling which may be indicative of soil moisture regime. The second approach, the micromorphology of a soil which can be regard as one of its most characterizing feature is closely related to the chemical composition of its constituents. The third approach concerned of morphological criteria and seasonal fluctuations of water table. The fourth approach concerned morphological methods were used to study saline soils, including the forms of new salt formations, the mineralogy of readily and poorly soluble salts and effects of the salts on the make up of the saline mass. The main gool of the study is evaluation the development of the soil profile under dried and cultivated in El-Manzala plain.

The area under investigation located between longtitudes 32° 10¯ and 32° 20¯ east and latitudes 31° 10¯ and 32° north Map 1.

The meteorological data of Port Said station between (1990 - 2000) show that the mean annual temperature is 20.8C°. The average of annual rainfall is 73.3 mm/year. Evaporation values ranged between 3.7 and 8.9 mm/day. Relative humidity values ranged between 69.0 and 74.0 %. The wind velocity ranges between 1.9 and 3.8 Knots. Based on Soil Taxonomy (2006) the soil temperature regime could be defined as thermic and soil moisture regime is torric except the water logged soil could be considered aquic. ASSRIS (1975 a & b) the plain of Manzala lake are low lying, almost flat coastal marshes bordering Manzala lake which have been affected by fluvio-marine deposits and they are clayey soils and swamps. Some shore ridges are also present, which formed from lake beach lines. They are more sandy with admixture of shells and support some natural vegetation. The clay soils are recent, therefore there is no profile development except of laying phenomenon (mottling). Abou Al-Izz (2000) mentioned that the Pleistocene and Holocene deposits cover a large area in Egypt about 165000 km^2 equal 16% of the country area. He also pointed to the deposits of late Pleistocene and Holocene contains of silty and clayey flats which resulted from the old Nile branch Sabkhas are wide spreed with their saline soils along the southern peripheries of the present lake of Manzala. El-Nahry (1997) mentioned that the fluvio-marine deposits rements. The soils under studies are characterized by alternative pattern of sedimentation and their sediments originated from fluvio marine deposits, and lacustrine deposits. Calcium carbonate content ranges between 0.48 and 59.52 which could be refered to the effect of sea shells fragments. Organic matter content reache to 5.92 % could be refered to fish residual and Bahr El-Bakar drain water. The total salts content reaches 164.70 dS/m. Cation exchange capacity reaches 70 meq/100g soil. Gypsum content ranges between 1.08 and 10.56%. Available nitrogen ranges between 74 and 251 ppm, phosphorus ranges between 22.4 and 64.10 ppm and potassium more than 250 ppm. The soils classified as Typic Aquisalids, Typic Haplosalids, Halic Haploterrerts, vertic Torrifluvents. Also he added that the native vegetation are dinse growth of Phragmits communis and Salicornia fructicosa. Stolt & Rabenhorst (1991) found that cycles of oxidation and reduction in localized zones of marsh and boundary argillic horizons caused Fe+2 to concentrate as Fe nodules, Ferrans and neoferrans. Hussein (1975) in his study found that the micro morphological features of normal alluvial soil are the argillasepic plasmic fabric dominants, with few skelsepic and vosepic plasmic fabric with more plasma separations in the S-matrix. The dominant void types present in the normal soil were branching channels, vughs of different kinds and changed in the deep layer to prolate, where as, chambers appear more at the surface and in the intermediate layers. Also he added that the main micro morphological features in the saline soils are Halans appeared and ferrans, calcitans and gypsans are more obvious in saline soil than normal soils which has argillans. Khatter *et al.* (1988) found that in the normal alluvial soils, the argillasepic plasama dominants together with few skill and vosepic ones especially in the sub soil layers. However, salinity encourage the formation of more plasma separation fabrics such as in mo and masepic. He also added that the planner voids began to appear in saline soils. The cutans of argillans, organs, manganese, ferrans organo-ferrans, soluans and gypsans in water logged and saline soils. Hussien (1975) in his study on the low salt affected soils, show that the content the argillasepic plasmic fabric dominants, with few skelsepic and vosepic while the voids are ranged between branching channels, vughs and other different kinds. Moreover, the main micro morphological are halans, ferrans, calcitans and gypsans which become more obvious with increasing salinity level.

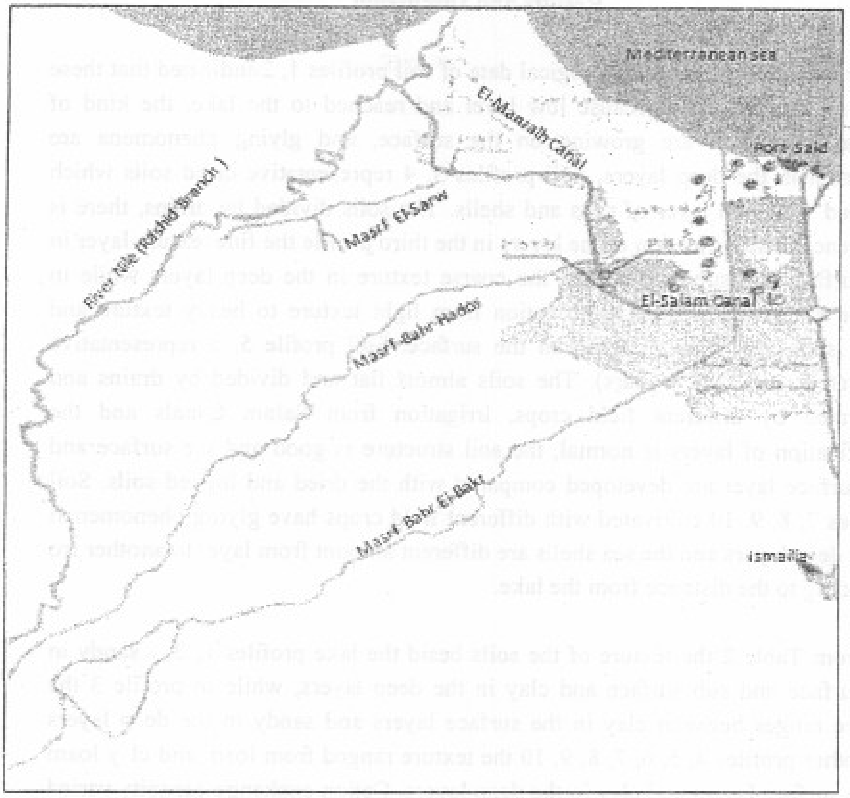
Material and Methods

The area under investigation bounded by longitudes 32° 10˝ and 32° 20˝ east and latitudes 31° 10˝ and 32° north in Map 1 .



Map 1. Location of the studied area.

The soils of the area representative by ten soil profiles as following: soil profiles 1, 2 in water logged soil, 3,4 in dried soils, 5,6 in cultivated soils for 5 years and 7,8,9,10 in cultivated soils for 10 years. The soil profiles were dug and the different samples were collected for the different analyses Map 2.



Map 2. Soils of the investigated area.

The morphological description of these profiles was carried out according to the guidelines edited by FAO (2006). Representative disturbed soil samples have been collected and analyzed using the soil survey laboratory methods manual (USDA, 2004). The American soil taxonomy, (USDA, 2006) was used to classify the different soils of the investigated area to the sub great group level. Then the correlation between the physiographic and taxonomic units, were designed after Elbersen & Catalan (1987).

Undisturbed samples for thin section were collected from four soil profiles to represent the different soil condition as water logged, dryied, and cultivated soils through soil profiles 2, 3 , 6, 8. The impregnation of air dried soil samples was formed on bases of the procedure outlined by Abd El-Hamid (1973) and Brewer (1964). The micro morphological description was carried.

Results and Discussion

From Table 1 the morphological data of soil profiles 1, 2 indicated that these soils are logged soils because low level and reached to the lake, the kind of natural vegetation are growing on the surface, and glying phenomena are dominant in the deep layers. Soil profiles 3, 4 representative dried soils which covered with thin layer of salts and shells. The soils divided by drains, there is difference in stratification of the layers in the third profile the fine texture layer in the surface and sub surface and the coarse texture in the deep layers while in profile 4 there is normal stratification from light texture to heavy texture and there is no any plant growing on the surface. Soil profile 5, 6 representative cultivated soils (for 5 years). The soils almost flat and divided by drains and cultivated by different field crops, irrigation from Salam Canals and the stratification of layers is normal, the soil structure is good and the surface and sub surface layer are developed compared with the dried and logged soils. Soil profiles 7, 8, 9, 10 cultivated with different field crops have glying phenomenon at the deep layers and the sea shells are different amount from layer to another fro according to the distance from the lake.

From Table 2 the texture of the soils besid the lake profiles 1, 2 . sandy in the surface and sub surface and clay in the deep layers, while in profile 3 the texture ranges between clay in the surface layers and sandy in the deep layers The other profiles 4, 5, 6, 7, 8, 9, 10 the texture ranged from loam and clay loam in the surface layers and clay in the deep layers. Cation exchange capacity varied from layer to another according to the texture and ranged between 1.20 and 61.79 Cmol/kg. ESP values are less than 15 %.

From Table 3 shows that the pH values ranged between 7.00 and 8.00. O.M content high in the surface layers and decrease with depth and ranged between 0.41 and 5.36%. $CaCO_3$ content is different from layer to another and ranged between 2.78 and 80.00%, according to the variation in sea shells content. Gypsum content ranged between 2.36 and 9.20%. Salt content values varied from layer to another according to the effect of saline water table and evaporation, and ranged between 15.70 and 400.00 dS/m.

Based on the soil description and analytical data the soils of the area are classified as shown in Table 4 .

TABLE 1. Soil profile description of the investigated area .

Profile No.	Depth in cm	Symbole of horizon	Colour dry	Colour moist	texture class	structure	Consistance wet	Consistance moist	Consistance dry	pores	roots	Boundry	Land use and	Soil moisture condition
1 water looged	0-40	C_1	10 YR 5/2	10 YR 4/2	Sand	sssb	ms.sp	mfr	sh.	Csmcdr	Cfsm	d	none	waite land
	40-50	C_2	10 YR5/2	10 YR 3/2	Sand	sssb	ms sp	fr.	sh.	Csmcdr	Cs	CS	....	the surface layer waite and the deep layers are looged.
	50-85	C_3	10 YR 4/1	10 YR 3/1	Clay	smsb	s.p	f.	h.	Csmcdri	none	d.	....	
	85-125	C_4	10 YR 3/1	10 YR2.5/1	Clay	Exslm	vs.vp	vf	vh.	Csmcdri	none	....	....	
2 water looged	0-20	C_1	10 YR 7/2	10 YR 4/2	Sand	sssb	ms.sp	fr	mh.	Csmcdri	Csm.	CS	none	waite land
	20-50	C_2	10 YR 6/2	10 YR 5/2	Sand	sssb	ms.sp	sfr	sh.	Csmcdr	none	CS	....	the surface layer waite and the deep layers are looged
	50-80	C_3	10 YR 6/1	10 YR 4/1	Clay	smsb	vs vp.	Exf	Exh.	Cscdri	none	CS	....	
	80-100	C_4	10 YR 5/2	10 YR 4/2	Clay	vsmlsb	vs vp.	vf	vh.	Cscdri	none	CS	....	
	100-140	C_6	10 YR 5/2	10 YR 4/2	Clay	Exlm	Ex.p.	vf.	vh.	Csmcdri	none	....	....	
3 draied	0-10	C_1	10 YR 4/2	10 YR 3/2	Clay	smsb	vs.vp.	f.	mh.	Csmcdri	none	CS	none	dry land and the subsurface layer are moist
	10–30	C_2	10 YR 5/1	10 YR 4/1	Clay	smlsb	vs.vp	vf.	vh.	Csmcdri	none	d.	....	
	30-70	C_3	10 YR 6/2	10 YR 4/2	Sandy loam	mssmsb	ms.sp	f.	h	Csmcdri	none	d	....	
	70-150	C_4	10 YR 6/2	10 YR 4/2	Sand	sssb	ss.np.	mf.	sh.	Csmcdri	none	CS	....	
4draied	0-10	C_1	10 YR 6/2	10 YR 4/1	Clay	mssmsb	vs.vp.	f.	h.	Csmcdri	none	d.	none	the surface layer moist and the deep layers are looged.
	10–20	C_2	10 YR 5/1	10 YR 4/1	Clay loam	smsb	s.p.	vf.	vh	Csmcdri	none	CS	....	
	30-50	C_3	10 YR 6/2	10 YR 4/2	Loam	mssmsb	s.s	mf	mh.	Csmcdri	none	CS	....	
	50-70	C_4	10 YR 5/2	10 YR 3/1	Clay loam	smsb	s.p.	f.	h.	Csmcdri	none	CS	....	
	70-90	C_5	10 YR 5/1	10 YR 3/1	Clay	vsmlsb	vs.vp	vf.	vh.	Csmcdri	none	CS	....	
	90-120	C_6	10 YR 3/1	10 YR 2.5/1	Clay	Exslm.	Exs.E xp.	Exf.	Exh.	Csmcdri	none	....		
5 cultivated 5 year	0-10	Ap	10 YR 5/2	10 YR 4/1	Clay loam	mssmsb	s.p.	f	h.	Csmcdri	fs	d.	Cotton.	the surface layers are dry and the deep layers are moist.
	10–30	B1	10 YR 4/2	10 YR 3/1	Clay loam	smsb	vs.vp.	v.f.	vh.	Csmcdri	none	CS	....	
	30-50	B2t	10 YR 3/1	10 YR 3/1	Clay	vsmlsb	vs.vp.	Ef.	Exh.	Csmcdri	none	CS	....	
	50-120	C3	10 YR 6/1	10 YR2.3/1	Clay	Exslm.	Exs.E xp.	vf.	vh.	Csmcdri	none	....	....	
6 cultivated 5 year	0-20	Ap	10 YR 5/2	10 YR 3/1	Clay loam	mssmsb	s.p.	f	h.	Csmcdri	none	CS	Ric	the surface layers are dry and the deep layers ranged btween moist and looged.
	20-40	C1	10 YR 5/1	10 YR 4/1	Clay loam	smsb	s.p.	f.	h.	Csmcdri	none	d.	....	
	40-70	C2	10 YR 3/1	10 YR 2.5/1	Clay	vsmlsb	vs.vp.	vf.	vh.	Csmcdri	none	d	....	
	70-120	C3	10 YR 3/1	10 YR2.5/1	Clay	ExsLm	Exs.E xp.	Exf.	Exh	Csmcdri	none	....	....	

TABLE 1. Contd.

Profile No.	Depth in cm	Symbole of horizon	Colour dry	Colour moist	texture class	structure	Consistance wet	Consistance moist	Consistance dry	pores	roots	Boundry	Land use and	Soil moisture condition
7 Ten years	0-10	Ap	10 YR 5/1	10 YR 4/1	Clay loam	mssmsb	s.p	f	h.	Csmedri	none	d.	Ric	The surface layer dry and the deep layers are range between moist and looged
	10-40	B_1	10 YR 5/1	10 YR 4/1	Clay	smsb	vs.vp	vf	vh.	Csmedri	none	d.	....	
	40-80	B_2	10 YR 4/4	10 YR 2.5/1	Clay	vsmsb	vs.vp	vf.	vh.	Csmedri	none	CS.	....	
	80-90	B_3t	10 YR 6/1	10 YR 3/1	Clay	vsmlsb	vs.vp	Exf.	Exh.	Csmedri	none	CS	...	
	90-120	C_1	10 YR 5/1	10 YR 2.5/1	Clay	Exslm	Exs.Exp	vf	vh.	Csmedri	none	CS.	....	
8 Ten years	0-20	Ap	10 YR 5/1	10 YR 4/1	Clay loam	msmsb	s.p	f.	h.	Csmedri	none	d.	Ric	The surface layer dry and the deep layers ranged between moist and looged
	20-40	B_2	10 YR 6/1	10 YR 4/1	Clay	smsb	v.p.	vf.	vh.	Csmedri	none	CS.	.....	
	40-55	B_3t	10 YR 5/1	10 YR 4/1	Clay	vsmsb	vs.vp	vf.	vh.	Csmedri	none	CS.	....	
	55-65	C_3	10 YR 5/1	10 YR 4/1	Clay	vsmlsb	vs.vp	vf	vh.	Csmedri	none	CS.	....	
	65-120	C_4	10 YR 4/1	10 YR 2.5/1	Clay	Exsmlm	Exs.Exp	Exf.	Exh.	Csmedri	none	....	...	
9 Ten years	0-20	Ap	10 YR 4/1	10 YR 2.5/1	Clay	smsb	vs.vp	vf.	vh	Csmedri	none	d.	water mellon	The surface layer dry and the deep layers ranged between moist and looged
	20-35	B_1t	10 YR 5/1	10 YR 3/1	Clay	smsb	vs.vp	vf.	vh.	Csmedri	none	d.	...	
	35-45	C_2	10 YR 3/1	10 YR 3/1	Clay	smlsb	vs.vp	vf.	vh.	Csmedri	none	d.	...	
	45-65	C_3	10 YR 4/1	10 YR 4/1	Clay	vsmlsb	vs.vp	vf.	vh.	Csmedri	none	CS.	....	
	65-130	C_4	10 YR 4/1	10 YR 4/1	Clay	Exslm	Exs.Exp	Exf.	Exh.	Csmedri	none	...	....	
10 Ten years	0-10	Ap	10 YR 3/1	10 YR 3/1	Clay	smsb	vs.vp	vf.	vh	Csmedri	none	d.	Cotton	The surface layer dry and the deep layers ranged between moist and looged
	10-20	C_1	10 YR 3/1	10 YR 3/1	Clay loam	msmsb	s.p	f.	h.	Csmedri	none	d.	....	
	20-50	C_2	10 YR 3/1	10 YR 3/1	Clay	vsmlsb	vs.vp	vf.	vh.	Csmedri	none	d.	...	
	50-120	C_3	10 YR 2.5/1	10 YR 2.5/1	Clay	Exslm.	Exs.Exp	Exf.	Exh.	Csmedri	none	....	....	

TABLE 2. Particle size distribution, cation exchange capacity (CEC) exchangeable cations and ESP.

Profile No.	Depth cm	Gravel %	Coarse Sand %	Fine Sand %	Silt %	Clay %	Texture Class	CEC Cmol/ Kg	Exchangeable Cations (mq/100g soil)				ESP %
									Ca^{++}	Mg^{++}	Na^{+}	K^{+}	
1	0-40	0.00	18.36	78.16	2.50	0.94	Sand	1.20	0.60	0.30	0.16	0.15	12.50
	40-50	0.00	12.38	72.25	10.25	5.12	Sand	3.25	1.61	1.19	0.29	0.16	8.92
	50-85	0.00	5.91	2.08	30.56	61.45	Clay	60.89	30.65	20.70	6.99	2.55	11.49
	85-125	0.00	0.21	1.91	35.78	62.10	Clay	61.79	30.75	20.37	8.02	2.65	12.98
2	0-20	0.00	50.24	40.75	5.00	4.01	Sand	2.53	1.21	0.99	0.21	0.12	8.30
	20-50	0.00	45.57	35.19	10.32	-8.92	Sand	6.85	3.12	2.53	0.95	0.25	13.87
	50-80	0.00	1.73	5.04	31.56	61.65	Clay	61.30	30.95	20.13	8.21	2.01	13.39
	80-100	0.00	1.62	8.53	30.20	59.65	Clay	58.02	28.65	20.70	6.99	2.55	12.05
	100-140	0.00	1.33	3.52	34.78	60.37	Clay	60.05	30.22	20.15	7.02	2.66	11.69
3	0-10	0.00	4.04	18.62	36.51	40.83	Clay	38.89	16.35	13.85	5.55	1.78	14.27
	10-30	0.00	1.50	20.08	37.06	41.36	Clay	40.82	20.00	11.47	6.00	2.50	14.69
	30-70	0.00	17.04	49.48	14.78	18.70	Sandy Loam	16.69	7.56	5.86	2.32	0.95	13.90
	70-150	0.00	50.69	40.70	5.01	3.60	Sand	2.03	1.12	0.60	0.15	0.15	7.43
4	0-10	0.00	30.32	25.32	30.23	25.41	Loam	24.25	14.65	11.85	3.50	1.75	14.43
	10-30	0.00	11.39	28.96	25.23	33.22	Clay Loam	33.56	15.16	13.72	5.00	1.78	14.80
	30-50	0.00	26.84	16.58	20.32	36.26	Clay Loam	32.25	16.16	14.41	5.23	1.75	14.80
	50-70	0.00	4.54	12.11	32.75	38.60	Clay	38.95	21.76	10.58	5.16	1.45	13.29
	70-90	0.00	2.61	3.69	37.12	40.58	Clay	41.89	23.88	10.63	6.14	2.15	14.66
	90-110	0.00	0.16	0.57	38.56	43.71	Clay	45.75	22.35	13.79	6.80	2.81	14.86
5	0-10	0.00	14.75	28.75	28.63	34.51	Clay Loam	33.56	16.17	12.71	4.89	1.88	14.57
	10-30	0.00	19.98	17.06	27.56	35.40	Clay Loam	34.12	16.16	13.30	5.01	1.76	14.68
	30-50	0.00	3.12	4.51	32.11	60.26	Clay	58.75	26.35	22.79	7.26	1.59	12.36
	50-120	0.00	1.38	10.23	30.23	58.16	Clay	56.73	27.01	20.37	6.75	3.50	11.89
6	0-20	0.00	10.14	16.71	32.78	39.26	Clay Loam	38.89	16.35	13.85	5.50	1.78	14.27
	20-40	0.00	15.03	13.69	34.02	37.26	Clay Loam	36.12	17.16	14.38	5.20	1.75	14.39
	40-70	0.00	16.14	9.86	32.78	41.22	Clay	39.56	17.65	13.85	5.55	1.78	14.27
	70-100	0.00	0.55	1.78	36.54	62.13	Clay	61.23	30.20	20.37	8.02	2.65	13.09

TABLE 2. Contd.

Profile No.	Depth cm	Gravel %	Coarse Sand %	Fine Sand %	Silt %	Clay %	Texture Class	CEC Cmol/Kg	Exchangeable Cations (mq/100g soil)				ESP %
									Ca^{++}	Mg^{++}	Na^{+}	K^{+}	
7	0-10	0.00	13.74	12.36	34.45	39.45	Clay Loam	38.36	16.35	13.32	5.45	1.88	14.17
	10-40	0.00	14.61	9.39	32.76	43.24	Clay	42.62	19.56	16.58	5.16	1.45	12.10
	40-80	0.00	8.42	4.26	30.57	56.75	Clay	55.25	25.24	21.63	6.14	2.15	10.99
	80-90	0.00	1.01	1.40	35.21	60.38	Clay	59.23	26.03	23.29	7.22	2.39	12.19
	90-120	0.00	13.71	5.02	33.43	47.54	Clay	46.82	21.76	18.58	5.16	1.45	11.02
8	0-20	0.00	14.16	15.39	30.65	39.80	Clay Loam	37.89	16.65	12.85	5.65	1.98	14.91
	20-40	0.00	0.40	1.23	36.65	60.72	Clay	61.72	30.25	20.37	9.02	2.65	14.61
	40-55	0.00	0.05	1.22	35.76	62.97	Clay	54.82	24.88	21.63	6.14	2.15	11.20
	55-65	0.00	10.20	13.40	20.12	55.68	Clay	54.21	23.58	22.93	6.14	2.15	11.33
	65-120	0.00	0.55	10.12	30.56	58.77	Clay	57.23	25.03	22.99	7.22	2.39	12.62
9	0-20	0.00	4.35	5.43	35.75	54.47	Clay	53.22	22.58	21.93	6.14	2.15	11.54
	20-35	0.00	2.35	6.94	32.07	58.64	Clay	57.25	28.03	20.93	8.22	2.39	14.36
	35-45	0.00	4.53	1.81	38.12	55.52	Clay	54.61	23.87	21.33	7.14	2.15	13.07
	45-65	0.00	0.96	3.50	34.56	60.98	Clay	58.95	26.03	22.29	8.22	2.45	13.94
	65-130	0.00	0.48	0.61	40.21	58.70	Clay	57.21	26.10	22.93	7.99	2.59	13.97
10	0-10	0.00	23.69	10.03	30.13	36.15	Clay Loam	35.12	16.16	14.21	5.21	1.85	14.83
	10-20	0.00	11.74	7.97	35.78	44.51	Clay	43.02	20.56	16.58	6.16	1.45	14.32
	20-50	0.00	1.02	19.43	33.12	46.43	Clay	45.02	20.76	18.58	5.16	1.45	11.46
	50-120	0.00	8.23	8.62	30.79	52.36	Clay	51.05	21.58	20.75	6.14	2.15	12.03

TABLE 3. Chemical analyses of the investigated area (pH, OM, CaCO3, gypsum, EC, soluble cations and anions).

Profile No.	Depth in Cm	pH (1 : 1)	O.M %	$CaCO_3$ %	Gypsum %	EC dS/m	Soluble Cations mq/L				Soluble anions mq/L			
							Ca^{++}	Mg^{++}	Na^{+}	K^{+}	CO_3^{--}	HCO_3^{-}	Cl^{-}	SO_4^{--}
1	0-40	7.79	0.55	9.44	2.36	32 60	90 00	40.00	178.57	10.38	0.00	40.00	300 00	21.05
	40-45	7.43	0.75	7.22	3.23	71.00	56.89	80.00	559.52	13.59	0.00	40.00	660.00	10.00
	50-85	7.69	3.25	18.33	4.66	113.70	120 00	195.20	797.62	17.18	0.00	100.00	1500.00	470.00
	85-125	7.51	5.36	8.89	6.01	129.00	139.50	138.50	989.19	22.05	0.00	60.00	920.00	309.24
2	0-20	7.67	0.41	38.89	5.12	34.00	97.16	80.00	154.76	8.08	0.00	60.00	200.00	80.00
	20-50	7.77	0.64	13 89	6.13	88.00	118.10	110.17	638 69	12.77	0 00	200.00	280.00	399.73
	50-80	7.27	3.32	11.11	4.22	123.50	220.00	180.00	819.90	15.10	0.00	60.00	800.00	375.00
	80-100	7.25	1.60	3.89	5.02	123.80	110.11	170.12	939.67	18.10	0 00	260.00	660.00	318.00
	100-140	7.14	1.60	9.44	6.01	134.00	103 85	100 20	1115.33	20.62	0.00	100.00	1200.00	400.00
3	0-10	7.21	4.47	16.67	7.23	400.00	270.57	127.79	3511 90	89.74	0.00	200.00	3200.00	600.00
	10-30	7.42	2.87	8.33	8.78	153.00	122.45	110.53	1270.86	25.18	0.00	60.00	1140.00	329.02
	30-70	7.50	1.91	11.11	6.12	139.00	118.43	112.53	1135.45	22.62	0.00	60 00	1060 00	269.03
	70-150	7.53	0.64	13.89	7.56	140.00	115.30	113.61	1146.46	23.71	0.00	80.00	1080.00	239.08
4	0-10	7.01	3.83	41.67	8.32	330.00	122.23	110.24	2991.80	75.25	0.00	200.00	3100.00	120.48
	10-30	7.44	3.03	5.56	6.75	117.70	159.15	130.15	868.10	20.28	0.00	80.00	860.00	237.68
	30-50	7.24	2.71	3.89	7.23	131.00	146.10	140.11	998.56	25.01	0.00	80.00	960.00	269.78
	50-70	7.28	1.91	8.89	5.65	144 00	137.22	125.31	1150.68	26.25	0.00	200.00	860.00	379.46
	70-90	7.78	0.70	3.89	6.12	161.00	150.45	140.54	1290.65	27.36	0.00	60.00	920.00	629.00
	90-10	7.94	0.28	43.33	8.02	181.00	300.01	170.11	1310.78	29.10	0.00	50.00	1300.00	460.00
5	0-10	7.80	3.51	36.11	7.23	50.00	160.23	130.33	198.85	10.02	0.00	60.00	400.00	39.43
	10-30	7.77	3.51	43.33	8.56	37.70	110.43	90.32	165.87	9.63	0.00	50.00	250.21	76.25
	30-50	7.64	2.87	41.67	9.75	40.00	118.31	100.30	170.75	10.02	0.00	40.00	240.00	119.38
	50-120	7.44	2.87	12.22	6 23	45.30	136.04	120.24	185.32	11.12	0.00	60.00	340.00	67.28
6	0-20	7.79	4.69	33.33	8.33	15.70	61.10	40.13	50.99	3.54	0.00	60.00	200.00	104.24
	20-40	7.35	3.51	25.00	6.25	26.30	86.03	70.03	100.85	6.02	0.00	60.00	260.00	57.07
	40-70	7.60	3.03	26.67	7.12	34.00	97.16	80.00	154.76	8.08	0 00	60.00	240.00	40.00
	70-120	7.83	2.87	35.56	8.56	34.00	90.18	87.00	153.76	9.08	0.00	40.00	240.00	60.00

TABLE 3 . Contd.

Profile No.	Depth in Cm	pH	O.M	$CaCO_3$	Gypsum	EC	Soluble Cations mq/L				Soluble anions mq/L			
		(1 : 1)	%	%	%	dS/m	Ca^{++}	Mg^{++}	Na^{+}	K^{+}	CO_3	HCO_3	Cl^{-}	SO_4
7	0-10	7.84	5.26	22.22	7.32	66.00	120.24	80.24	447.62	11.90	0.00	60.00	460.00	140.00
	10-40	7.35	4.95	41.67	9.20	75.30	98.02	80.01	560.11	14.85	0.00	40.00	500.00	212.99
	40-80	7.40	4.05	33.33	8.32	78.90	107.40	85.51	580.19	14.99	0.00	40.00	580.00	168.09
	80-90	7.70	3.76	26.11	6.56	98.00	124.30	100.20	738.10	16.90	0.00	55.00	589.00	335.50
	90-120	7.52	2.94	34.44	7.23	99.00	126.44	106.44	739.43	16.80	0.00	60.00	600.00	329.11
8	0-20	7.87	3.76	26.67	6.21	33.00	89.43	75.43	155.78	8.49	0.00	60.00	200.00	69.13
	20-40	7.64	3.19	36.11	7.56	44.50	108.13	80.23	245.24	11.03	0.00	80.00	240.00	124.63
	40-55	7.62	3.13	80.00	9.66	50.00	96.24	80.25	310.85	12.16	0.00	90.00	260.00	149.50
	55-65	7.45	3.03	2.78	5.21	60.00	112.50	90.41	380.99	15.18	0.00	98.00	398.75	102.33
	65-120	7.62	1.34	11.11	6.02	60.40	111.22	95.31	382.65	14.28	0.00	97.00	420.00	86.46
9	0-20	7.95	4.05	19.44	6.75	15.80	56.42	40.31	55.89	4.66	0.00	40.00	160.00	42.72
	20-35	7.87	3.73	12.22	5.67	18.00	60.52	50.43	60.98	7.12	0.00	60.00	200.00	80.95
	35-45	7.40	3.51	20.56	7.02	62.00	126.43	90.53	385.89	16.18	0.00	60.00	400.00	159.03
	45-65	7.13	3.51	37.78	8.11	64.20	117.21	95.31	410.98	17.98	0.00	60.00	440.00	141.48
	65-130	7.80	3.51	3.89	8.12	66.30	114.22	90.23	445.75	12.80	0.00	80.00	470.21	112.79
10	0-10	7.80	4.15	13.33	6.15	20.30	67.23	55.34	70.89	8.97	0.00	30.00	150.00	22.43
	10-20	7.62	3.86	33.33	7.25	24.00	78.21	60.31	90.75	10.21	0.00	35.00	170.00	34.48
	20-50	7.56	2.71	19.44	8.51	30.50	81.31	65.21	145.21	12.75	0.00	40.00	180.00	84.48
	50-120	7.80	2.14	3.89	6.56	43.70	148.00	100.10	172.95	15.85	0.00	60.00	300.00	123.00

TABLE 4. Classification of the investigated soils of the area .

Soil profile No.	Landuse	Soil classification
1,2	Barren and logged	Typic fluvaquents
3,4	Dried soil and Barren	Halic Haploxererts
5	Cultivated for 5 years	Aquic Haplargids
6	Cultivated for 5 years	Typic Xerofluaquents
7,8,9	Cultivated for 10 years	Typic Haplargids
10	Cultivated for 10 years	Typic Xerofluents

Micro morphology studies

To study the development of soil profile under dried and land use four profiles were chosen to representative the different soils in the area as the following:- water logged soil profile 2, dried soil profile 3, land use for 5 years soil profile 6, and land use 10 years soil profile 8. The data of the micromorphological in Table 5 and Fig. 1,2,3,4,5,6 show that in soils of the area the dominant skeleton grains minerals in the soils of the area are quartz, fieldspars (orthoclase, plagioclase) and (microcline), Muscovite, Biotite, Opaque minerals, and heavy minerals (Zircon, Rytile, Starulite, tourmaline, Rutile, hornbland, Garnet). The homogenous in the skelton grains distribution could be refered to the homogenous in the parent material. Plasmic fabric in the water logged soils are skelsepic and intertextic dominated in the surface layers while agglomero and porphyro are dominated in the deep layers which could be refered to the effect of parent material, while in the dried soil has isotropic porphyro, vosepic, Agglomero, skilasepic and vosepic are dominated in the surface layers and in the deep layers have single grains, also could be refered to the effect of stratification of the parent material layers of fluviomarin deposits, and the land use and management soils have porphyro, Agglomero, vosepic and skelsepic in the surface and deep layers which could be refered to the effect of land use, and management. Voids in the logged soils packing and mamulated vughs are dominant, while chamber, plan, vughs and packing voids are dominant in the dried soil and vughs, packing, mamulated vughs, channels and skew plans are the dominant in the land use soils. The different in the kind of the voids could be referd to the land use and management. Pedological features in the logged soils are longitude fossels of gypsum, rounded nodules of $CaCO_3$ and fossels, globular of iron oxids and organic matter, ferrovosepic, and intercalary of gypsum, while in dried soils it is rounded fossels of $CaCO_3$ and calcitans, and in land use soils it is broad calcitans, ferroorgans, intercalary of gypsum, longitude fossels of $CaCO_3$, original fossels plets, ferrans, gypstans, Globular of ferromangno and ferromangans. The variation in the pedological features could be referred to the effects of land use and management. Micro structure in the logged and dried soils ranged between Apedal, primary and secondary pedal structure while in the land use soils it is ranged between secondary and teratury pedal structure according to the effect of land use and management. From the previous study it is clear that the soil profile of land use soils (6, 8) is more developed than the soil profile of logged and dried soils .

TABLE 5. The micromorphology analysis of some profiles of the investigated area.

Profile No.	Depth in cm	Skeleton grains	Plasmic fabric	Voids	Pedological features	Micro structure
2	0-20	Coarse single grains of common quartz, frequent of fieldspars and few opaque minerals and the dominant heavy minerals are starlit, tourmaline rutile and zircon.	Some parts have skelsepic plasmic fabric.	Packing voids	Longitude fossels of gypsum, rounded nodules of calcium carbonate and fossels	A pedal (single grains).
	20-50	Coarse common normal quartz, frequent of fieldspars and mica muscovite, few opaque minerals as hornblende, strulite, and rutile.	Some parts have skelsepic and the other have Intertextic plasmic fabric.	Packing voids	Longitude and rounded fossels of $CaCO_3$ exerts of biological.	A pedal and some parts have primary peds.
	50-80	Fine common normal quartz. few fieldspars and few opaque minerals, as biotite, hornbland and rutile.	Some parts have intertertic and the other have Agglomero plasmic fabric.	Packing voids	Longitude and rounded fossels of $CaCO_3$, glabuler of iron oxids and organic matter	A pedal Soil materials.
	80-100	Very fine and medium common normal quartz, frequent of fieldspars (microcline) and moderately opaque minerals and heavy minerals such as biotite, augite, rutile and zircon.	Porphyro skplic plasmic fabric. Oninosepic plasmic fabric.	The dominated is Packing voids, prslongitud and mamulated vughs planer	Ferrovosepik plasmic fabric	Primary peds (the stratified layer of different texture classes).
	100-140	Fine to medium normal quartz, few fine field spars and few opaque minerals, such as biotite, hombland , rutile and zircon.	Porphyro skplic plasmic fabric.	Simple Packing voids, mamulated vughs	Rounded fossels of $CaCO_3$ intercalary gypsum	Pedal soil material (secondary peds).

TABLE 5. Contd.

Profile No.	Depth in cm	Skeleton grains	Plasmic fabric	Voids	Pedological features	Micro structure
3	0-10	Fine common normal quartz, frequently fine fieldspars especially plagioclase, opaque minerals and few heavy minerals such as, zircon, rutile, strulite, biotite and horn bland.	Isotropic porphyroskplic plasmic fabric and vospic plasmic fabric.	The dominated chambers and planer and some parts have vughy.	Rounded fossels of $CaCO_3$ and calctans.	Pedal soil materials (Secondary peds
	10–30	Medium to fine common normal quartz, frequently fieldspars (orthoclase and plagioclase), opaque minerals and few heavy minerals biotite, horn blend, zircon, and tourmaline.	Agglomeroplasmic fabric, skilasepic plasmice fabric, some parts have vosepic plasmic fabric.	Simple packing voids and vughs	Calcitans.	Pedal soil materials (Primary peds
	30-70	Medium common normal quartz, frequently field spars (medium orthoclase), opaque minerals and few heavy minerals paque, zircon, rutile and biotite.	Single grains, some parts have agglomeroplasmic fabric.	Simple packing voids	Calcitans.	A Pedal soil materials, some parts have Primary peds
	70-150	Medium common normal quartz, frequent orthoclase and plagioclase, fopaque minerals and few heavy minerals (horn bland, garnet, strorlite, zircon.	Single grains.	Simple packing voids	non	A Pedal soil materials.

TABLE 5. Contd.

Profile No.	Depth in cm	Skeleton grains	Plasmic fabric	Voids	Pedological features	Micro structure
6	0-20	Medium to fine normal quartz, frequent field spars especially plagio-clase, few opaque minerals, and heavy minerals as (hornbland, garnet, shtrolit, zircon and tourmaline).	Borphyroskplic plasmic fabric distribution, vosepic plasmic fabric.	Vughs, plans and simple packing voids.	Broad calcitans ferroorgans and intercalary gypsum and longtud fossels of $CaCO_3$.	Pedal soil material, secondary and tertairy pedal.
	20-40	Fine to medium common normal and undulosequartze, frequent fieldspars corthoclase and plagioclase, few opaque mineral and heavy mineral (Biotite, zircon, garnt, straulitr, rutile).	Vosepic plasmic fabric, the related distribution is porphyreskplic plasmic fabric.	Mamulated vughs, channels and skew plans, interpedal and simple packing voids.	Original fecal pelts, calcitan, ferrans and intercalary gypsum.	Pedal soil material, secondary and tertairy pedal.
	40-70	Fine normal common quartze, frequent fine plagioclase and orthoclase, few opaque mineral and heavy mineral (zircon, rutile, augite and hornbland).	Vosepic plasmic fabric, the related distribution is porphyreskplic plasmic fabric.	Mamulated vughs, chambers and channels interpeds voids as simple packing voids.	Gypstans, ferrans, fecal pelts and calcitans.	Pedal soil material, secondary and tertairy pedal structure.
	70-120	Very fine common quartz, frequent fieldspars (orthoclase and plagioclase) few opaque minerals and heavy mineral as (biotite, horn blend, zircon and rutile).	Vosepic and skelspeic plasmic fabric. the related distribution is porphyreskplic plasmic fabric.	Vughs, plans, the dominates are simple packing voids.	Globulas of ferromangno, ferrans and Gypstans, and fecal pelts.	Pedal soil material, (secondary pedal).

TABLE 5. Contd.

Profile No.	Depth in cm	Skeleton grains	Plasmic fabric	Voids	Pedological features	Micro structure
8	0-20	Fine common normalquartz, fine frequentfieldspars (orthoclase, plagioclase), few opaque minerals, and few heavy minerals as (biotite, zircon, horn bland, and augite).	Skelasepic plasmic fabric some parts have vosepic plasmic fabric and the related distribution are porphyroskelic plasmic fabric.	The dominats are simple packing voids and mamulated vughs and chambers.	Fecal (longated), gypstan and Globular of ferromangans	Pedal soil materials (primary and secondary pedal).
	20-40	Fine to medium common normal quartz, frequent fieldspars (plagioclase and orthoclase, few opaque mineral, few heavy minerals (zircon, rutile, augite, garnet and biotite) and.	Vosepic plasmic fabrics, some parts have skelsepic plasmic fabric. The related distribution are parphyroskplic and some parts have agglamero plasmic fabric.	Simple packing, vughs, mamulated and plans.	Globular of ferromangan, ferromangans Gypsum and fecal pelts.	Pedal soil materials (secondary pedal and primary prdal) pedal.
	40-55	Fine to medium normal quartz, frequent fine fieldspars (orthoclase), few opaque and heavy minerals, as (zircon, garnet, biotite, rutile).	Skilasepic plasmic fabric, the related distribution are porphyroskplic plasmic fabric.	Simple packing voids, mamulated, vughs and skew plans.	Calcitans and fecal pelts.	Pedal soil materials (secondary pedal) and primary pedal .
	55-65	Medium common normal quartz, medium frequent fieldspars (plagioclase and orthoclase), few heavy minerals, as (homblend, augite, zircon, strolite and garnet).	Agglomero plasmic fabric, some parts have porphyro skplic plasmic fabric and skplsepic plasmic fabric.	Simple packing voids, and mamulated vughs.	Calcitans and ferromangans and fecal pelts.	Secondary pedal and some parts have primary peds.
	65-120	Medium common normal quartz, frequent fieldspars medium plagioclase and orthoclase, few opaque mineral and few heavy minerals, as (horn blend, zircon, garnet, tourmalin and strorlite.	Skpelsepic plasmic fabric, the related distribution are Agglomero plasmic fabric.	Simple packing voids, and mamulated vughs.	Calcitans and ferromangans fecal plats.	Secondary pedal and some parts have primary peds.

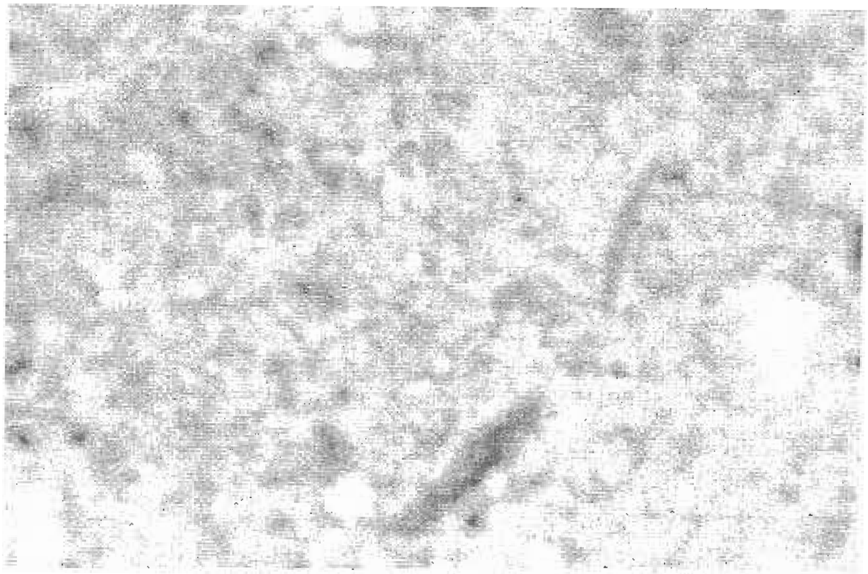


Fig. 1. Intertextic plasmic fabric (profile 2) plain (x 12) .

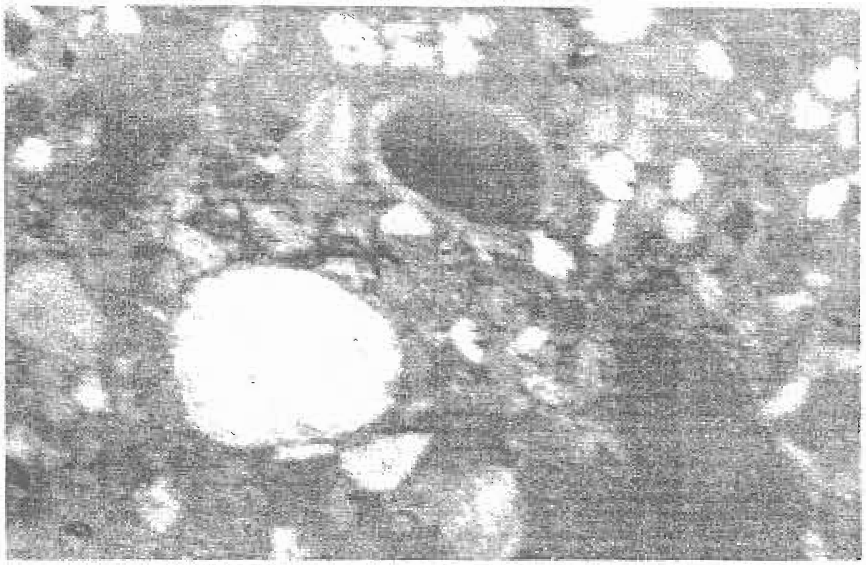


Fig. 2. Broad calcivosepic plasmic fabric (profile 3) plain (polarized x 25).

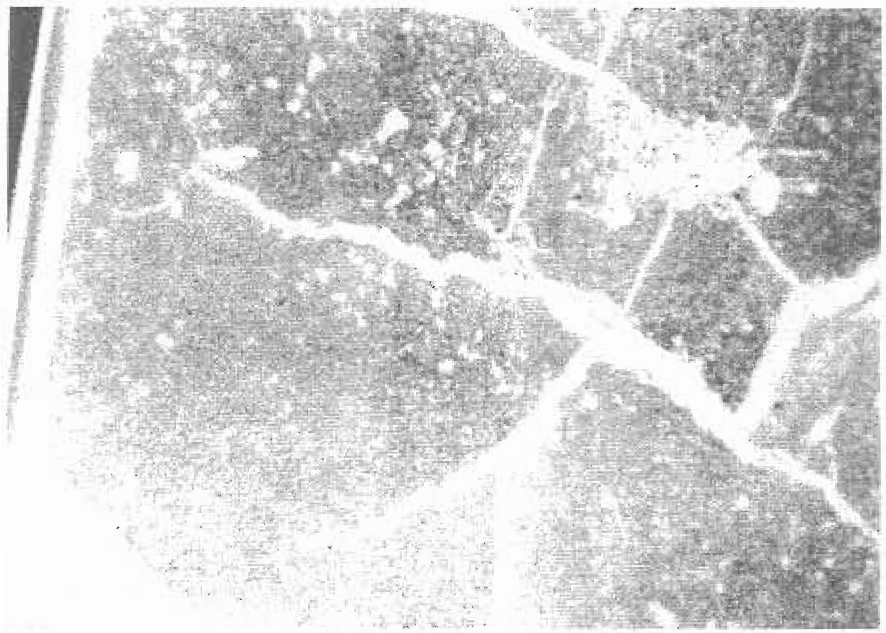


Fig. 3. Skew plain. Porphyroskilic plasmic fabric plain (x 12) tertiary structure (profile 6) .

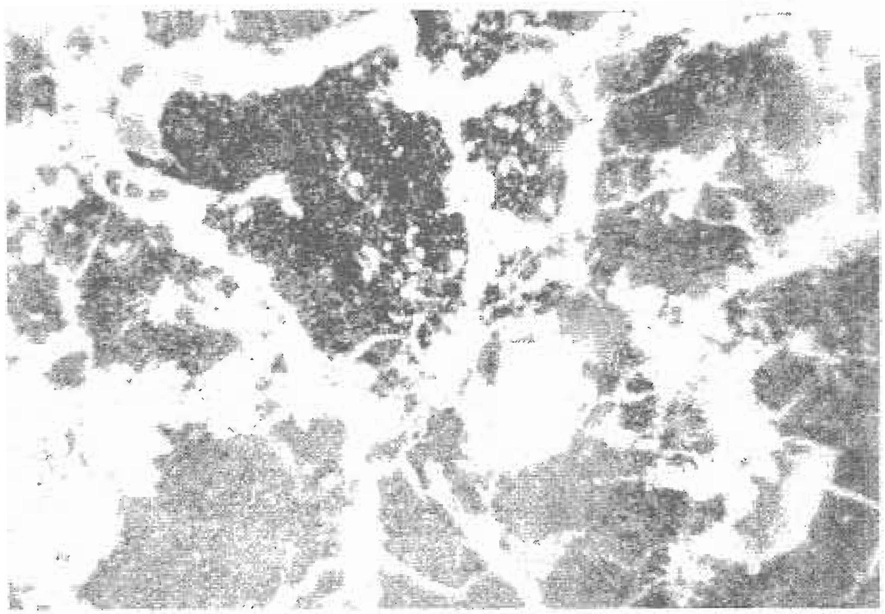


Fig. 4. Secondary and tertiary structure (profile 6) plain (x 12) .

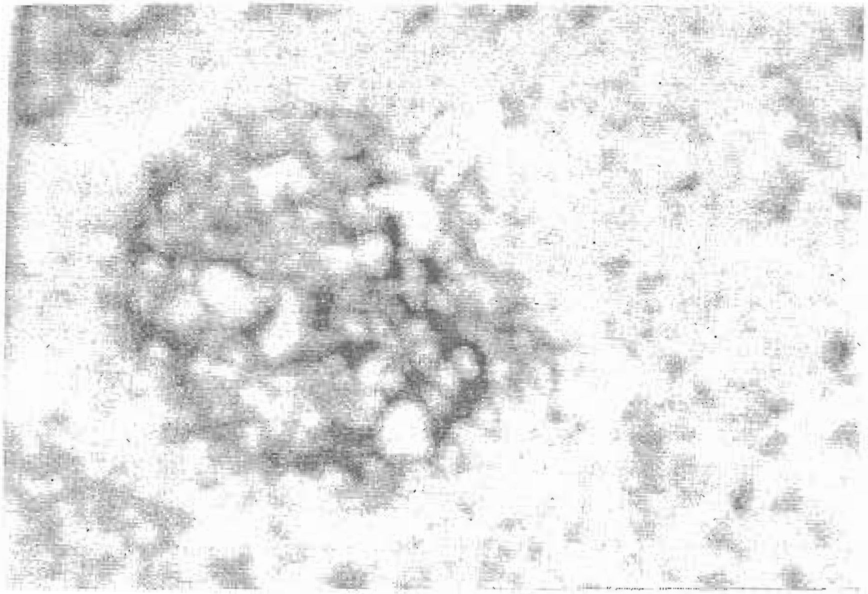


Fig. 5. Agglomero plasmic fabric (profile 8) plain (x 12) .

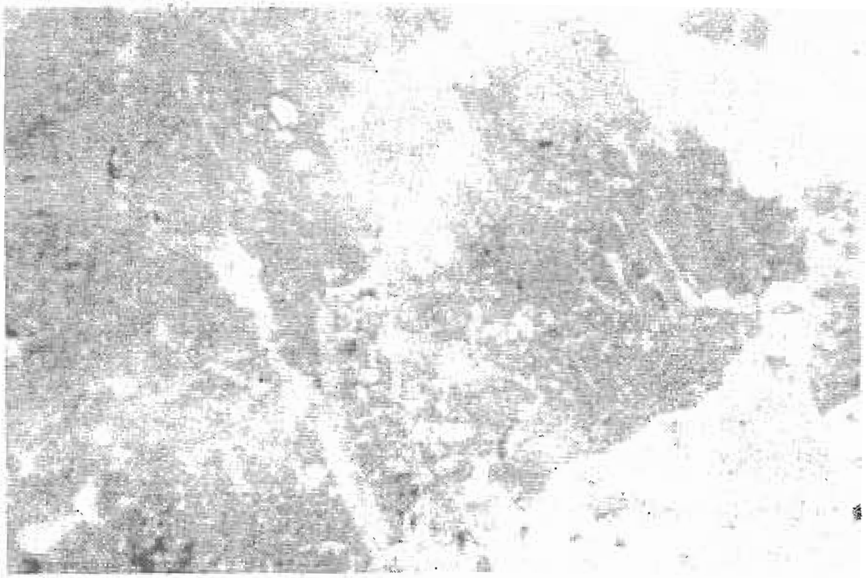


Fig. 6. Globular of ferromanganese, pedal soil material (profile 8) plain (x 12) .

Conclusion

The soils of the area under investigation form fluvio-marine deposits and located in El-Manzala plain South El-Manzala Lake. Based on the morphological description and analytical data the soils classified as Typic fluvaquents, Typic Haplo xererts, Aquic Haplargids, Typic xero fluaquents, Typic Halpargids, Typic xerofluvents.

The micromorphological data show that landuse soils are more developed than the logged and dried soils which clear from plasmic fabric, voids, pedological features and Micro structure as the following: - in logged soil skelsepic, intertextic dominated in the surface layer and agglomero and porphyro are dominated in the deep layers, while in the dried soil isotropic, vosepic, Agglomero, skilasepic and vosepic are dominated in the surface layers and in the deep layer it is single grains. The variation in the logged and dried soils referred to the stratification of the layers of parent material while in the land use soils have porphyro, Agglomero, vosepic and skelsepic in the surface and deep layers which could be referred to the effect of land use and management. Voids in the logged soil packing and mamulated vughs are dominated, while chamber, plan, vughs and packing are dominated in dried soil, and vughs, packing, mamulated vughs, channels and skew plans are dominated in the land use soils. The variation in the voids referred to the effect of land use and management more developed than the logged and dried. Pedological features in the logged soils are longitude fossels of gypsum, rounded nodules of $CaCO_3$ and fossels, globular of iron oxids and organic matter, ferrovosepic, and intercalary of gypsum, while in dried soils it is rounded fossels of $CaCO_3$ and calcitans, and in land use soils it is broad calcitans, ferroorganas, intercalary of gypsum, longitude fossels of $CaCO_3$ original fossels plets, ferrans, gypsans, Globular of ferromangno and ferromangans. The variation in the pedological features could be referred to the effect of soil land use and managements. Micro structure in the logged and dried soils is ranged between A pedal, primary and secondary while in the land use soils is ranged between secondary and teratury structure according to the effect of the land use and management.

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تأثير التجفيف واستخدام الأرض على تطور القطاع الأرضى منطقة المنزلة – مصر

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المنطقة محل الدراسة تحدد بواسطة خطوط الطول ١٠َ ٣٢ْ ، ٢٠َ ٣٢ْ شرق وخطوط العرض ١٠َ ٣١ْ ، ٠٠َ ٣٢ْ شمال. تم إختيار عشر قطاعات لتمثيل الأراضى الغدقة قطاع (١ ، ٢) والأراضى الجافة قطاع (٣ ، ٤) وأراضى مزروعة لمــدة ٥ سنوات قطاع (٥ ، ٦) وأراضى مزروعة لمدة عشر سنوات (٧ ، ٨ ، ٩ ، ١٠). القوام تغير من رمل إلى طينى فى الأراضى الغدقة والأراضى الجافة ومن طمييى إلى طينى فى الأراضى المزروعة. السعة التبادلية الكاتيونية تتراوح بين ١,٢ ، ٦١,٧٩ كيلو مول/كيلو جرام وتختلف تبعا لإختلاف القوام . المحتوى من كربونات الكالسيوم يتراوح بين ٣,٨٩ ، ٨٠,٠٠ ٪ ، والمحتوى من المــادة العضويــة يتراوح بين ٢,٣٦ ، ٩,٦٦ ٪ وقيم الملوحة تختلف من طبقة إلى أخرى وتتراوح بين ١٥,٢٠ ، ٤٠٠,٠٠ ديسيمنز/متر والقيمة العالية ترجع إلى تجفيف الأرض. بنــاءا علــى أساس الوصف المورفولوجى والتحليلات تم تصنيف الأرض إلــى
Typic Fluvaquenta, Typic Haploxererts, Aquic Haplargids, Typic xerofluvaquents, Typic Haplargids, Typic xerofluvents.

الوصف الميكرومورفولوجى يشمل التكوين المعدنى لحبيبات التربة ، والنسيج البلازمى ، والمسام والظاهر البيدولوجية والبناء الدقيق يدل على أن القطاع فى الأراضى المستخدمة فــى الزراعة أكثر تطوراً بالمقارنة بالأراضى الغدقة والأراضى الجافة وهذا يتضح من أن الأنسجة Skelsepic, intertextic تسود فى الطبقات السطحية بينما agglomero an porphyro تسود فى الطبقات العميقة فى الأراضى الغدقة بينما فى الأراضى الجافة يسود isotropic porphyro, vosepic, agglomero, skilasepic and vosepic فى الطبقة السطحية بينما single grains يسود فى الطبقات السفلية. والإختلاف فى النسيج البلازمى فى الأراضى الغدقة والجافة يرجع إلى مادة الأصل ونظام التعاقب الطبقى بينما فى الأراضى المزروعة نجد أن Porphyro, agglomero, vosepic and skelsepic تكون سائدة فى الطبقات السطحية والعميقة وهذا يرجع إلى استخدام الأرض فى الزراعة وعمليات الخدمة. المسام فى الأراضى الغدقة عبارة عن Packing and mamulated vughs بينما فى الأراضى الجافة تكون Chamber, plan vughs and packing والأراضــــى المزروعــة تكـــــون vughs, packing, mamulated vughs, channels and skew plans. والمظاهــر البيدولوجيــة فــى الأراضــى الغدقــة تكون longititude fossels of gypsum, rounded nodules of $CaCO_3$, globular of iron oxids and organic matter, ferro vosepic, and intercalary of gypsum. بينما فى الأراضى الجافة تكون rounded fossels of $CaCO_3$ and calcitans والأراضــى المزروعة كانت المظاهر البيدولوجيــة

Broard calcitans, ferroorganic, inercalary of gypsum, longititude fossels of $CaCO_3$, original fossels plets, gypsum and globular of ferromangans.

والإختلافات الموجودة فى المظاهر البيدولوجية ترجع إلى مادة الأصل وتعاقب الطبقات واستخدام الأرض والخدمة والبناء الدقيق نجد أنه فى الأراضى الغدقة والجافة يسود pedal and secondary بينما فى الأراضى المزروعة يسود البناء secondary and teraturay مما تقدم نجد أن الأراضى المزروعة قطاعها أكثر تطور من الأراضى الجافة والغدقة.