

() , ()

*

(/ / : / / :)

()

Eh

Eh

(/ /)

, Fe-cd(/ / %), Fe-t(/ / %)]
(EDS)

[Fe-DTPA(/ / ppm), Fe-o(/ / %)]

:

.EDS

(Paddy Soils)

.(Torabi, 2001)

(Ponnamperuma, 1972; Patrick

.and Reddy, 1978) .(Torabi, 2001)

Eh . (Eh)

.(Khan and Fenton, 1994)

(Witt and

Eh

.Haefele, 2005)

(Torabi, 2001; Ponnamperuma,

.1972)

, ()

(Alexander, 1974; Jahnsen
and McBride, 1989; Fiedler and Sommer, 2004)

Fe^{2+}
(Sajwan and Lindsay, 1986)
pH

(Ponnamperuma, 1972)

(Gao et al, 2002; Fiedler and
Eh Sommer, 2004)

(Faulkner et al,
1989; Torabi et al, 2002; Van Bochove et al, 2002;
Rostaminia et al, 2011)

rH
(FAO, 2006)

$rH = 2pH + 2Eh/59$ ()

rH
rH
<rH<

()

(Eh) (FAO, 2006)

(Cheng et al, 2009; Cogger et
al, 1992)

)
(Newhall and (

Eh (Fiedler and Sommer, 2004 ; Sigg, 2000)

.Berdanier, 1996) pH

)

() Eh pH
(Gotoh and Patrick, 1974)

(

()

(FAO, 2006)

(Tokashiki, 1985)

pH) Eh pH
(FAO, 2006) (:
(CEC)

[(Fe-cd) (Fe-o)]

Fe-o/Fe-cd

(Sparks, 1996;

Eh (Carter and Gregorich, 2008)

Eh ()

(Richardson and ()

(Vepraskas, 2001)

(Eh) = (V) + ()

XRD

Eh / / pH

DTPA

(Lindsay and Norvell, 1978)

(Sparks, 1996)

/ /

(Mckeague and Day, 1966)

(Richards ()

et al, 1997)

Cmol⁺/kg_{soil} / /

DTPA ()

Shimadzu (AA-670)

(/ ppm)

(/ ppm)

/ /

(λ = /) CuKα D

()

(Scanning Electron Microscope-SEM)

/ / /

SEM

XL30

(Philips)

()

(Soil Survey Staff, 2010)

Eh

Eh

()

()

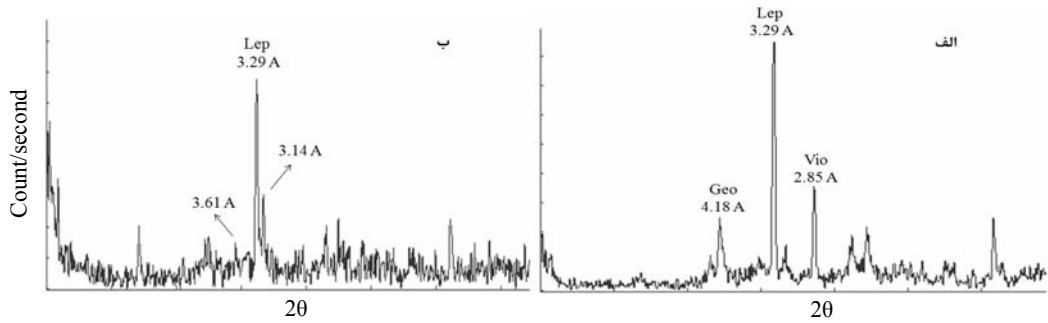
(Torabi, 2002)

/ Y)

Eh

(Y

()



		Redoximorphic Feature		()	(cm)	
Fine-loamy, mixed, active, thermic, Typic Endoaqualfs :						
Massive	C		2.5Y 4/2	0-20	Apg	
abk ,sbk	C	2%,FD,10YR5/6, Fe depletion	5Y 3/1	20-38	Bg	
Massive	C	5-10%, CP, 10YR4/6	5Y 4/1	38-45	Btg1	
Massive	C.L	2-5%, MD, 7.5YR4/4	5Y4/1 (35%) 10YR5/6 (65%)	45-70	Btg2	
Massive	C.L	Gleying, Fe depletion	5Y 4/1	70-105	Bg	
Fine, smectitic, thermic, Typic Endoaqualfs :						
Massive	C	2%, FFa	2.5Y 3/2	0-12	Apg	
Massive	C	5-10%, MD, 7.5YR5/6	5Y 4/1	12-25	Bg	
sbk	Si.C	10-20%, MD, 7.5YR5/6	5Y4/1 (70%) 10YR 5/6 (30%)	25-60	Btg1	
Massive	Si.C	Gleying	5Y 4/1	60-100	Btg2	
Fine-loamy, smectitic, thermic, Typic Endoaquepts :						
Massive	C	2%, FD	10YR3/6	0-20	Apg	
Massive	S.L	2-5%, MD	5Y 3/1	20-40	2Bg1	
Sigr	C.L	Gleying	5Y 4/1	40-75	2Bg2	
Fine, mixed, superactive, thermic, Typic Endoaquepts :						
Massive	C	-	10YR3/1	0-16	Apg	
Massive	C.L	2-5%, FD	2.5Y3/1	16-40	Bg1	
Massive	C.L	Gleying	2.5Y3/1	40-100	Bg2	
Fine-loamy, mixed, superactive, thermic, Typic Endoaquepts :						
Massive	C		10YR3/1	0-12	Ap	
sbk	C.L	5%, M-CD, 10YR4/4	2.5Y2/0	12-27	Bg1	
sbk	C.L	5-10%, MD	10YR3/2	27-45	Bg2	
sigr	S.L	-	10YR 4/1	45-100	2Cg	
Fine-loamy, vermiculitic, thermic, Oxaquic Hapludalfs :						
Massive	C	-	3/7.5YR3	0-20	Apg	
sbk	C	5-10%, MD	3/7.5YR4	20-38	Bg	
sbk	Si.C	10-20%, MD, 7.5YR5/6	5/7.5YR3	38-45	Btg1	
Massive	C.L	2%, MD, 7.5YR5/6	0/7.5YR4	45-70	Btg2	
Sandy, vermiculitic, thermic, Oxaquic Udipsamments						
Massive	S.L		10YR 3/2	0-13	Ap	
Sigr	L.S		10YR 3/6	13-23	AC	
Sigr	S		5YR 3/4	23-61	C1	
Sigr	S	Gleying	10YR 3/3	61-100	C2	
Fa	D	P:	M.	C	F:	()
		:sigr	:sbk	:abk :		()

()

(Fe-o/Fe-cd)

pH

(Ponnamperuma, 1972)

()

pH_(1:5)

pH

pH

(/ /)

pH

(Schwertmann, 1966)

(Ponnamperuma,

pH

)

pH

.1972)

Btg₁

(

pH

(DTPA

)

(1974) Gotoh and Patrick

pH

Eh

pH

Fe²⁺

pH

(Ponnamperuma, 1972)

()

pH

(1974) Gotoh and Patrick

Eh

DTPA

()

(Bacha and Hossner,

.1977)

Fiedler

(Torabi, 2001)

(2004) and Sommer

EDS

()

EDS

()

Eh

Eh

(

) rH

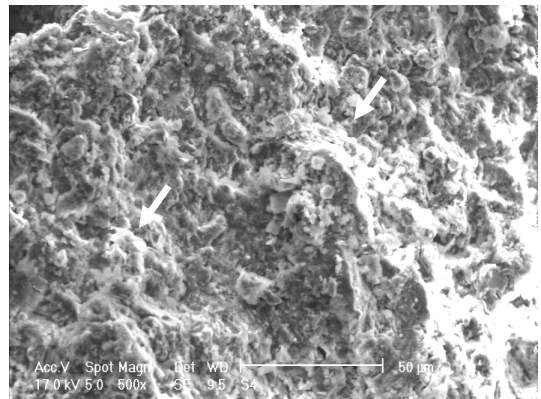
EDS

Element	Wt* %	At* %
MgK	0.00	0.00
Al K	9.70	14.23
Si K	28.09	39.57
P K	0.58	0.74
Cl K	0.49	0.55
K K	2.79	2.83
Ca K	1.99	1.96
Ti K	1.40	1.15
MnK	2.13	1.54
Fe K	52.82	37.42
Total	100.00	100.00

Element	Wt %	At %
MgK	0.00	0.00
Al K	14.73	18.02
Si K	48.63	57.17
P K	0.48	0.51
Cl K	0.46	0.43
K K	5.36	4.53
Ca K	5.10	4.20
Ti K	2.03	1.40
MnK	1.67	1.00
Fe K	21.55	12.74
Total	100.00	100.00

:At

:Wt*



()

SEM

(Energy Dispersive

(SEM)

Spectrometer-EDS)

Fe-o/Fe-cd

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