





7DEOH +LJK SRGHD/VULLSPW GDW V W K H L P R G H O SDVVHG WKH ) WHVW WR  
 1 0LQLFOX [LPXP 6WDQGDUG HDFK UHJUHVLRQ FRHILFLHQW DQG  
 YDOXH DOXH GHYLDWLRQ FRXQG WKDW PRVW RI WKH FRHILFLH

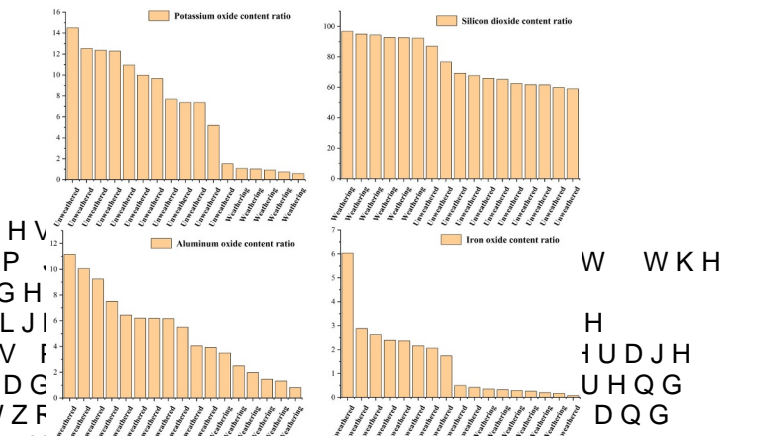
6L2  
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 9DOLG  
 VDPSOH

7DEOH 3DUDPHWHU HVWLDPDWLRQ  
 &RHI 5REXVW 6WG (UU W 3!\_W\_ >  
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 \$Q

+LJK SRWDVVLXP JODVV KDV WKH ODUJHVW VLOLFDFRQWHQW DQG LWV  
 PD[LPXP DQG PLQLXP YDOXH GHYLDWLRQ DUHDW\ DQG WKH  
 PD[LPXP DQG PLQLXP YDOXH RI SRWDVVLXP R[LGH DQG  
 DOXPLQD GLIIHU JUHDW\  
 7DEOH VKRZV WKH GHVFULSWLYH VWDWLVWLFLV RI OHDG EDULXP

7DEOH /HDG EDULXP GDWD GHVFULSWLRQ VWDWLVWLFLV  
 1 0LQLFOX [LPXP 6WDQGDUG )URP 7DEOH LW FDQ EH REWDLQHG  
 YDOXH DOXH GHYLDWLRQ SHH FRHILFLHQWV RI SRWDVVLXP R[L  
 DOXPLQD DUH VLJQLILFDQW\ GLIIHU  
 DQG WKH IRXU FRPSRQHQWV DUH XVH  
 ZH FDQ PDNH WKH FRQWHQW SORW DV

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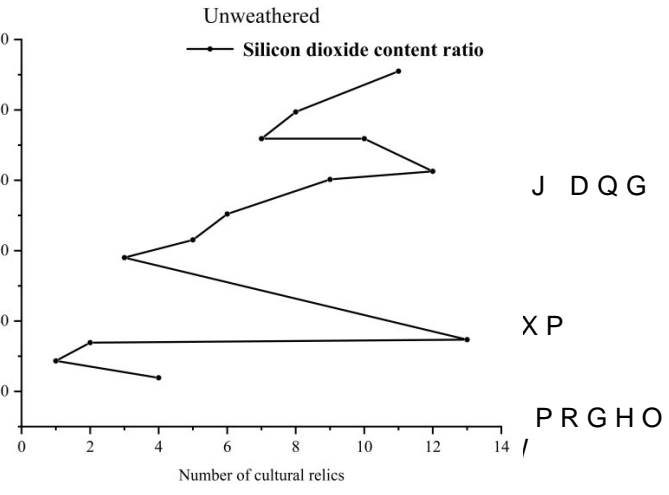


7KH PD[LPXP DQG PLQLXP YDOXH RI OHDG EDULXP  
 R[LGH FRQWHQW RI OHDG EDULXP  
 PD[LPXP DQG PLQLXP YDOXH RI OHDG EDULXP  
 GLIIHUHQW FRPSDUHG ZLWK KLJ  
 DYHUDJH FRQWHQW RI VLOLFDFRQWHQW  
 YDOXH RI EDULXP R[LGH DQG OHDG  
 RI GLIIHUHQFH EHWZHHQ WKH WZF  
 WKHUH LV D JHUPDODWHQGHQDO UHJUH  
 ,Q RUGHU WR NQRZ WKH LQIOXHQLVW  
 FRPSRVLWLRQ RQ ZKHWHU KLJK SRWDVVLXP  
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 VWDQGDUG DQG PHWKRG DUH XVHG WR  
 WKH PRGHO LV DV IROORZV

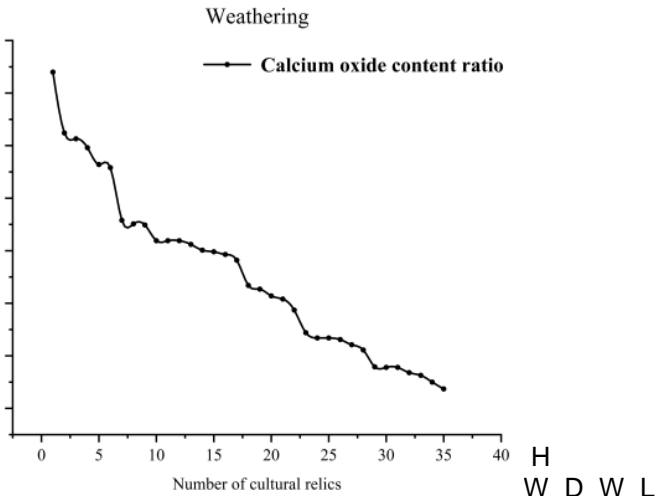
Weathering<sup>(g)</sup> D<sup>(m)</sup> | b<sup>(m)</sup> x<sup>(m)</sup> H<sup>(m)</sup>  
 )URP )LJXUH LW FDQ EH VHHQ WKDW  
 LQGLYLGXDO FRPSRQHQWV KDV FOH  
 JODVV LV ZHDWKHUHG DQG WKH LQ

Weathering<sup>(g)</sup> LV D GLFKRWRP\ YDULDEOH RI ZHDWKHUHQW  
 D KLJK SRWDVVLXP WISH ZLWK DYDOXH RI ZHDWKHUHQW  
 KLJK SRWDVVLXP DQG XQZHDWKHUHQW  
 P LV WKH QXPEHU RI FKHPDFDO  
 SRWDVVLXP DIWHU WKH DQGHQDOW  
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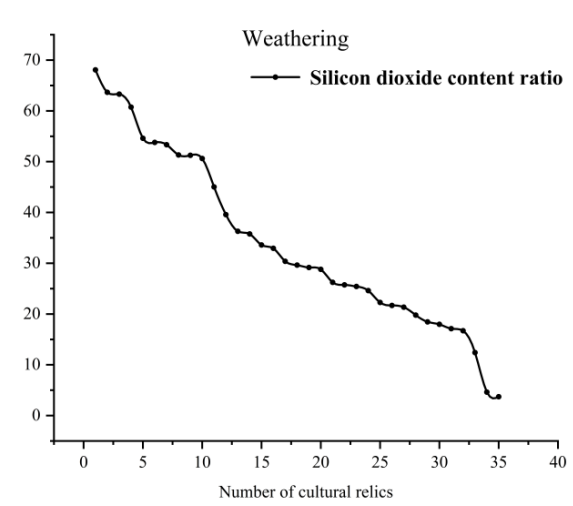
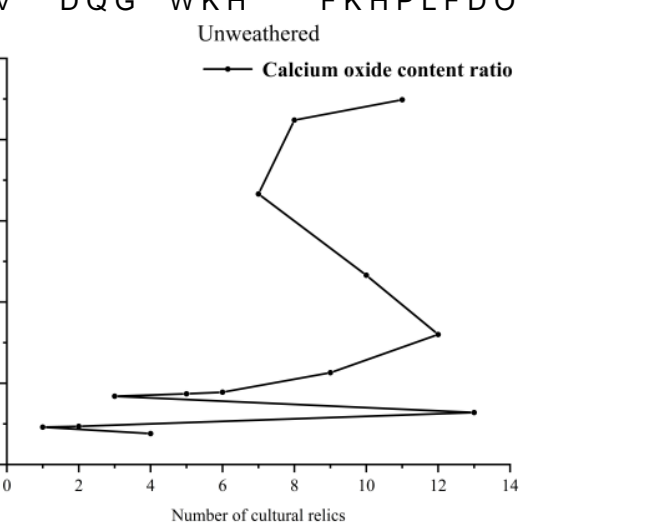
7KH G H S H Q G H Q W Y D U L D E O H  
 H V W D E O L V K P H Q W D Q G V R O X W L R  
 ( V W D E O L V K W K H U H J U H V V L R Q H T X C  
 Weathering  $D^{(n)} \cdot c^{(z)} x^{(z)}$   
 Weathering  $( )$  L V D G L F K R W R P \ Y D U L D E  
 L Q W K H E D U L X P O H D G W \ S H Z L W K  
 D Y D O X H R I X Q Z H D W K H U H G E D U  
 F K H P L F D O F R P S R Q H Q W V D U H V L J Q L I L F D Q W O \ G  
 G D W D . . x  $( )$  F R U U H V S R Q G V W R W K H  
 F D O F L X P R \ L G H D O X P L Q D F R S S H U  
 R \ L G H S K R V S K R U X V S H Q W R \ L G H  
 U H V S H F W L Y H O \  
 7 K H V R O X W L R Q P H W K R G L V F R Q V L  
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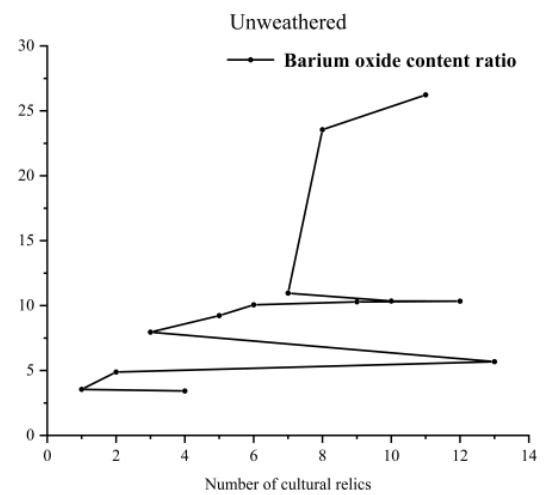
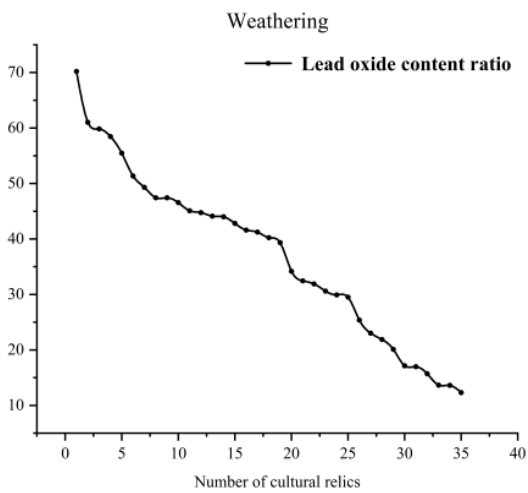
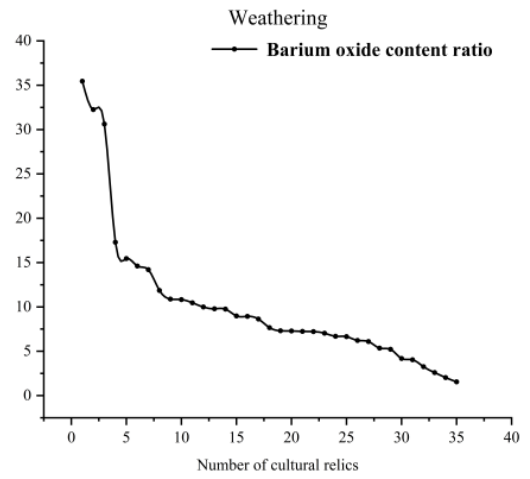
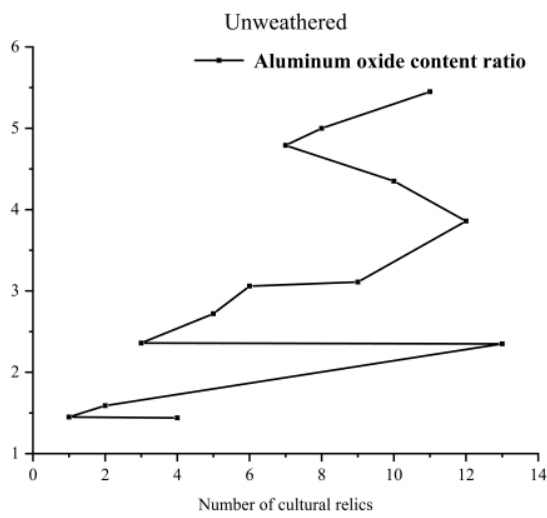
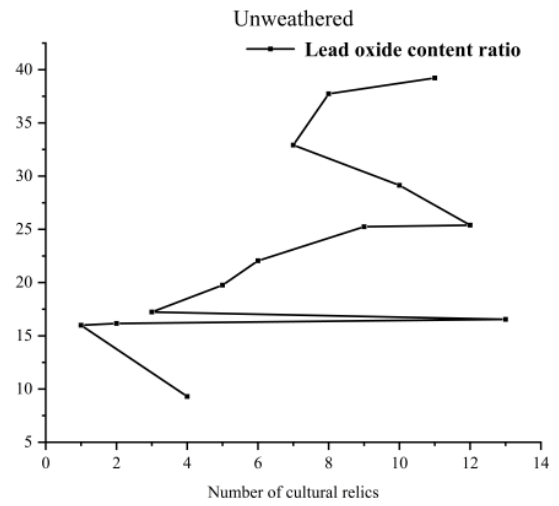
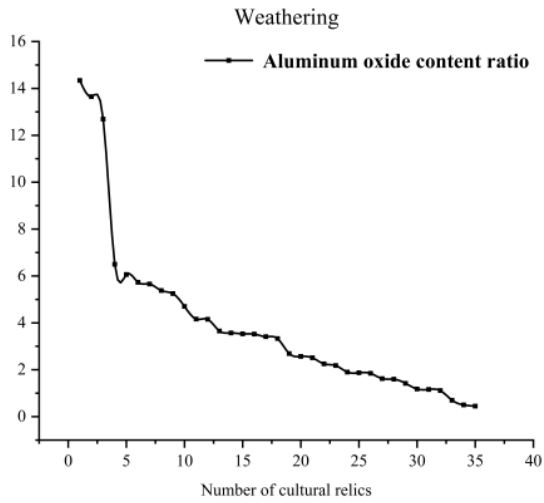


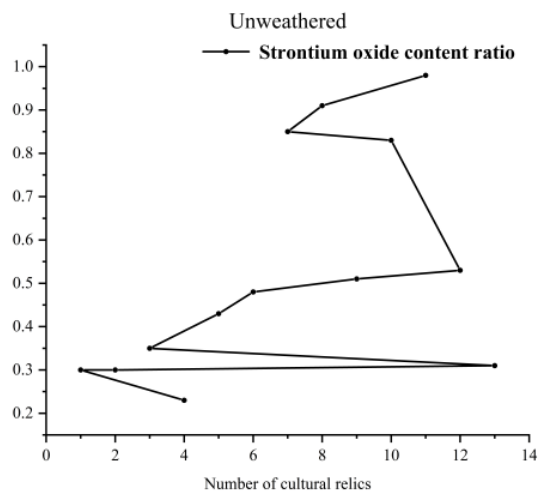
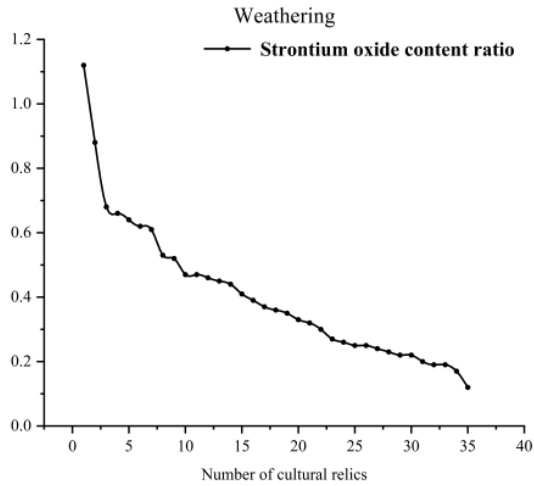
& R H I 5 R E X V W 6 W G W U U > & R Q I , Q W  
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7 D E O H D Q D O \ J H V W K D W D W W K H  
 F R P S R Q H Q W V D U H V L J Q L I L F D Q W O \ G  
 F R P S R Q H Q W V D U H X V H G  
 Z K H W K H U O H D G E D U L X P Z H D W K H U V  
 F R P S R Q H Q W V D U H V K R Z Q E H O R Z







LV PRUH ZHDWKHUHG KLJK SRWDVVLX  
 WKH FRORU QGLV EODFN ZHDWKHU  
 7KH SURSRUWLRQ UDQJH RI SRWDV  
 VLOLFD DQG DOXPLQD FRPSRQH QWV  
 IURP XQZHDWKHUHG WR ZHDWKHUHG  
 a a WKH ORZHU WKH FR  
 LW LV WR ZHDWKHU DQG WKH KLJKHU  
 LW LV WR ZHDWKHU  
 7KH VWDWLVLWLFDO ODZ RI OHDG E  
 KLJK SRWDVVLXP JODVV LV QRW REYL

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 VWXGLHV RI DQFLHQW JODVV WHFK  
 RI \*HRVFLHQFHV  
 \*HQWDJ /XFLOH /RPEDUGR 7LJLDQD  
 &KDEDV \$QQH 9DOORWWR 0DUW  
 ZHDWKHULQJ RI PHGLHYDO OLNH SF  
 HYDOXDWLRQ RI NH\ IDFWRUV >-@  
 DQG SROOXWLRQ UHVHDFK LQWHU  
 %HWWHPERXUJ - 0 &RPSRVLWLRQ  
 YHUUV GH YLWUDX[ DQFLHQW>&@  
 \$FWHV GX ; FROORTXH LQWHUQ  
 9LWUHDUXP 0HGLL \$HYL 3DULV

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 0LQJ :HDWKHULQJ RI 6RGD /LPH  
 \*ODVVHV>-@ 7UDQVDFWLRQV RI W  
 6RFLHW\

)LJXUH /HDG EDULXP FKHPDFDO FRPSRVLWLRQ FKDUW (\$0,1\$7,21 \$1'

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 6WXGLHV LQ &RQVHUYDWLRQ

7KH FRQWHQWV RILGHODD EDGXP LGH LQ WKH  
 EDULXP FRPSRQH QWV RI OHDG FDQ EH REWDLQHG IURP )LJXUH  
 LQ WKH ZHDWKHULQJ DQG XQZHDWKHUHG FRQWHQW FKDQJH UDQJH  
 &RPSDUHG ZLWK WKH FRQWHQW RI OHDG EDULXP FRPSRVLWLRQ  
 DQG VSHFLILF KLJK SRWDVVLXP WKHUH LV QR REYLRXV VWDWLVLWLFDO  
 ODZ RI ZHDWKHUHG DQG XQZHDWKHUHG FKHPDFDO FRPSRVLWLRQ  
 FRQWHQW

&RQFOXVLRQ

%DVHG RQ WKH GDWD LQ TXHVWLRQ & RI WKH &KLQD +LJKHU  
 (GXFDWLRQ 6RFLHW\ &XS 1DWLRQDO &ROOHJH 6WXGHQW  
 0DWKHPDWLFDO 0RGHOLQJ &RPSHWLWLRQ ZH HVWDEOLVKHG D  
 UHJUHVVLQRQ PRGHO WR REWDLQ WKH UHODWLRQVKLS EHWZHHQ WKH  
 ZHDWKHUHG DQG XQZHDWKHUHG FKHPDFDO FRPSRQH QWV RI WKH  
 JODVV VXUIDFH ZLWK RUQDPHQWDWLRQ FRORU DQG JODVV W\SH  
 DQG IXUWKHU EDVHG RQ WKH UHJUHVVLQRQ PRGHO ZH IRXQG WKH  
 VWDWLVLWLFDO UXOHV RI FKHPDFDO FRPSRVLWLRQ FKDQJHV LQ KLJK  
 SRWDVVLXP DQG OHDG EDULXP 7KH UHVXOWV RI WKLV SDSHU DUH  
 DV IROORZV

7KH RUQDPHQWDWLRQ LV % DQG & WKH W\SH LV KLJK  
 SRWDVVLXP DQG WKH FRORU LV EODFN DQG JUHHQ WKHVH IDFWRUV  
 KDYH D VLJQLILFDQW LPSDFW RQ WKH FKDQJH RI VXUIDFH  
 ZHDWKHULQJ :KMOO WKH RILGHODD EDGXP & WKH JODVV