

NIR

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NIR

PLS

NIR

PDA

NIR

(PLS)

(MSC)

NIR

PLS

NIR

(RMSECV)

/

(R<sup>2</sup><sub>cv</sub>)

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(RPD)

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(FAOSTAT, 2006)

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(Ashraf

.Jahani, 2002)

(FAOSTAT, 2006)

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samireei@cc.iut.ac.ir :

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- 1. Palmaceae
- 2. Phoenix
- 3. Dactylifera

4. Climacteric

(Nicolai *et al.*, 2007)  
(2000) Schaare & Fraser

(Schmilovitch *et al.* 1999)

SSC

(2011) Kavdir *et al.* .

(Ashrafjahani, 2002)

NIR

FT- (Mireei *et al.*, 2010a) NIR

(Mireei *et al.*, 2010b) NIR

NIR

NIR

NIR

(Noh & Choui, 2006) <sup>Δ</sup>

<sup>Y</sup>PDA

EPP2000NIR

(InGaAs)

7. Photo-Diode Array  
8. StellarNet, Inc. Oldsmar, Florida, USA

1. Reflectance  
2. Transmission  
3. Interactance  
4. Full Transmittance Measuring Method  
5. Half Transmittance Measuring Method  
6. Bifurcated optical cable

$$R_{relative} = \left( \frac{R_{sample} - R_{dark}}{R_{reference} - R_{dark}} \right) \times 100 \quad (1)$$

$R_{sample}$

$R_{reference}$

$R_{relative}$  :

$R_{dark}$

R400-7-VISNIR

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NIR

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$(T_{reference})$

$(T_{dark})$

$(T_{relative})$

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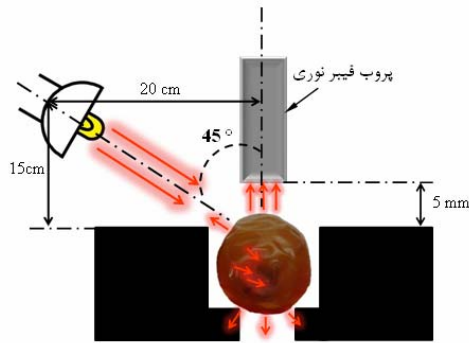
$(I_{dark})$

$(I_{reference})$

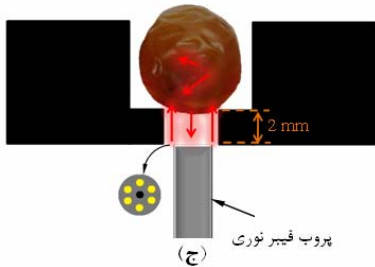
$(I_{relative})$

( )

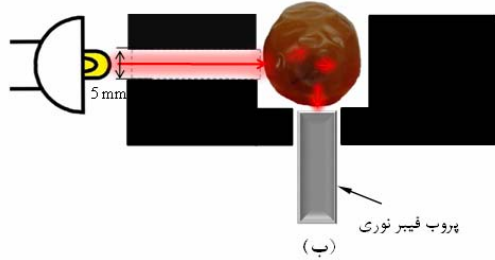
$(R_{relative})$



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(ب)

NIR

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(MSC) <sup>r</sup>

MSC

(Lu, 2001)

AOAC

(Elleuch *et al.*, 2008; Keramat Jahromi *et al.*, 2008)

(PLS) <sup>r</sup>

PLS .

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(Williams & Norris, 2001)

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1. Savitzky- Golay Algorithm
2. Multiplicative Scatter Correction
3. Partial Least Squares

(RPD) <sup>4</sup> (RMSECV) <sup>3</sup> (LV) <sup>1</sup>  
 RPD Williams & Norris, 2001 PLS  
 (RMSECV) PLS Mireei *et al.*, 2010b  
 (Li *et al.*, 2007; Williams & Norris, 2001)  
 PLS  
 RMSECV PLS  
 / Unscrambler  
 ( )  
 NIR (Williams & Norris, 2001)  
 )  
 ( / ) (R<sup>2</sup>)  
 % /

3. Root Mean Square Error of Cross Validation  
 4. Residual Predictive Deviation

1. Latent Variables  
 2. Leave one-out Cross Validation

NIR

(%)

/ / / / / / (%)

-CH<sub>2</sub> -CH

-OH

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Williams

(2001) & Norris

NIR

-CH<sub>2</sub> CH

( )

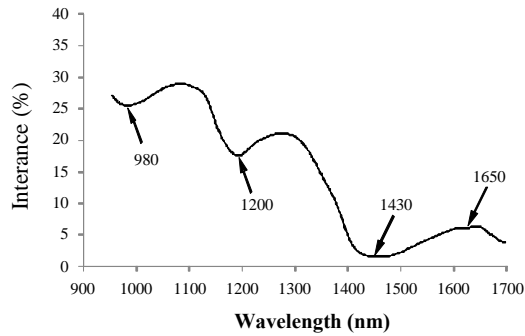
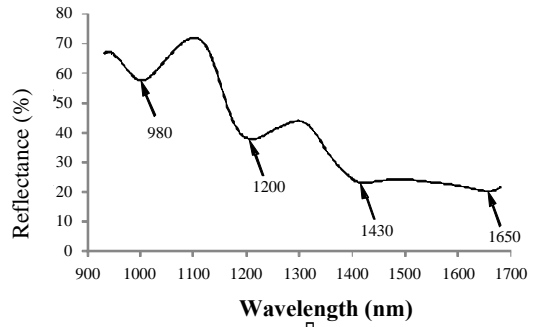
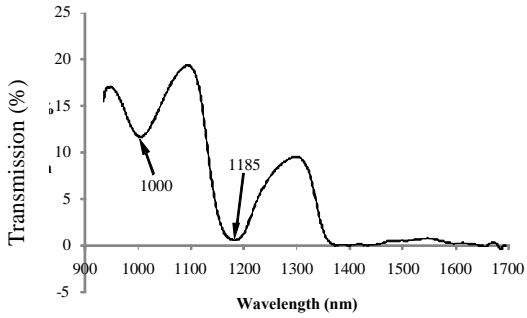
-OH

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Schaare & Fraser, 2000

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(2003)

-CH<sub>2</sub>

(Williams & Norris, 2001)

NIR

PLS

MSC

PLS

NIR

(PLS-PCs) PLS

NIR

NIR

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-OH

(2001) Williams & Norris .

-OH+-CH

RMSECV

(LV)

-CH<sub>2</sub> -CH

Park *et al.* .

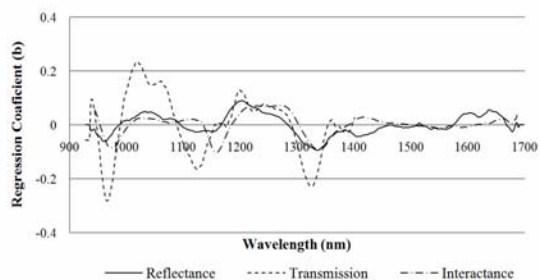
PLS ( )  
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PLS

PLS

RPD	RMSECV	$R^2_{cv}$	RMSEC	$R^2$
/	/	/	/	/
/	/	/	/	/
/	/	/	/	/

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(b)

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-OH

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PLS

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PLS

$R^2_c = /$  ( )

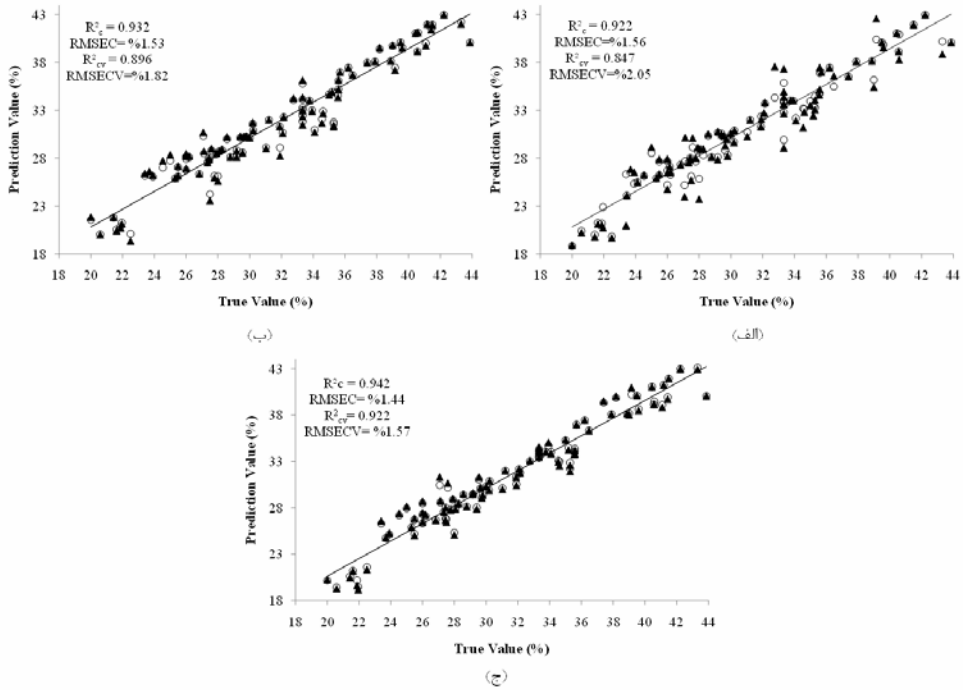
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$$R^2_{cv} = / ) \quad (RMSEC = \% /$$

$$(RPD = / \quad RMSECV = \% /$$

MSC

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(c)

PLS

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$$(RMSEC = \% / \quad R^2_c = / )$$

$$RMSECV = \% / \quad R^2_{cv} = / )$$

(RPD = /



(2000) Schaare & Fraser

	$R^2_{cv} = / )$	
	$R^2_{cv} = / )$	(RMSEC=% /
NIR		(RPD= / RMSECV=% /
PLS		
RPD ( $R^2_{cv} = / )$	/	RMSECV
	/	

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