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**(FSP)**

***(Fagus orientalis L.)***

***(Fagus orientalis L.)***

**(FSP)**

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**FSP**

/ ( cm)

**FSP**

/ ( cm)

( / )

( / )

***(FSP)***

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**Fiber Saturation point**

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(FSP)

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(FSP)

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FSP

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FSP

FSP

FSP

FSP

FSP

FSP.

FSP

FSP

(.)

x-y-z

x x

)  
:y :x

( :z

cm

( \* )  
SPSS (CRD)

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Tiemann  
-Simpson  
Barton

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$$\ln\left(\frac{1}{h}\right) = \frac{36\sigma}{rRT} \quad (1)$$

$$\frac{H}{100} = h = 1 - \frac{0.001}{r} \quad (2)$$

(1)

(psi)  $P$

bar

r

( ) r

$$r = 0.29 \sigma / p \quad (3)$$

psi

(1)

$\sigma$

$^{\circ}C$

$$M_f = \frac{M_h - M_o}{M_o} \times 100 \quad (4)$$

(FSP)

$M_o$

$M_h$

$M_f$

FSP

	FSP (%)		FSP (%)
N	/	N	/
S	/	S	/
E	/	E	/
W	/	W	/
N	/	N	/
S	/	S	/
E	/	E	/
W	/	W	/
N	/	N	/
S	/	S	/
E	/	E	/
W	/	W	/
N	/	N	/
S	/	S	/
E	/	E	/
W	/	W	/

/

FSP

/

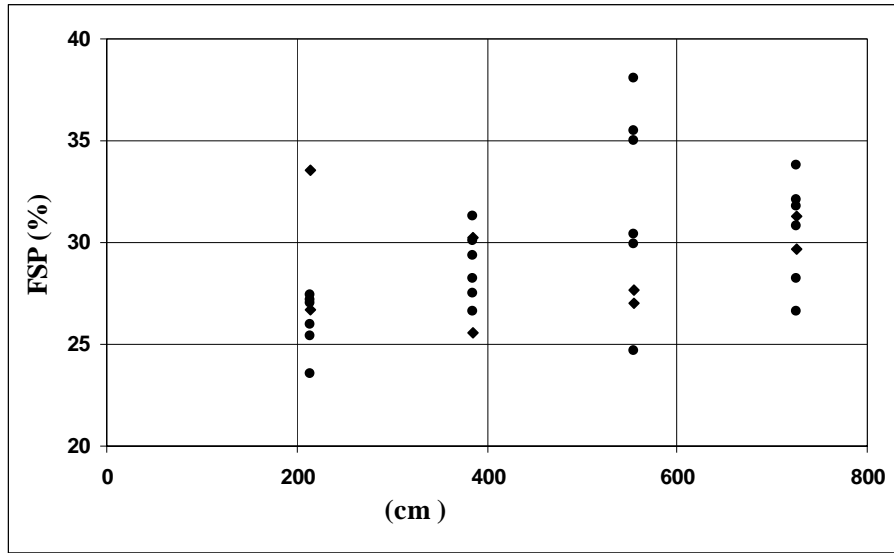
FSP

FSP

		<b>F</b>
		/ <i>ns</i>
		/ <i>ns</i>
		/ <i>ns</i>

( )

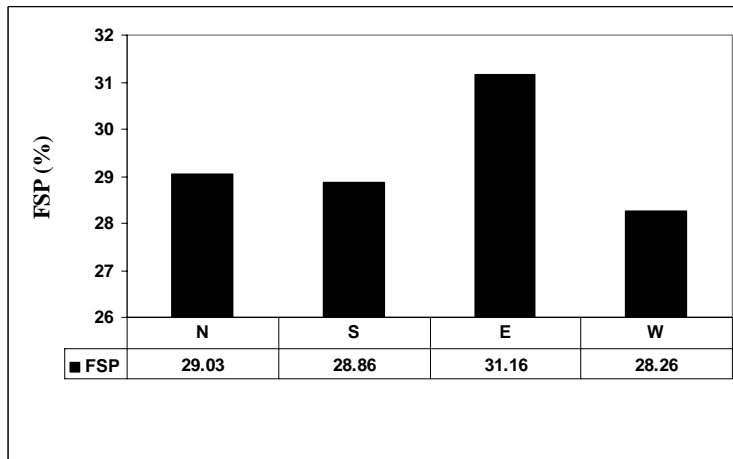
ns



FSP

FSP

FSP



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(FSP)

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FSP

FSP

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FSP

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FSP

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FSP

FSP

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(*Fagus orientalis* L.)

(FSP)

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5-Simpson, L. A. & Barton, A.F.M., 1991. Determination of the fiber saturation point in whole wood using differential scanning calorimetry, *Wood Science and Technology* 25:301-308.

6-Stamm A.J., 1971. Review of nine methods for determining the fiber saturation point of wood and wood products, *Wood Science and Technology* 4:114-128.

7-Stone, J.E. & Scallan, A.M., 1967. The effect of component removal upon the porous structure of the cell wall in wood, II) swelling in water and the fiber saturation point, *TAPPI* 50:469-501

8-Tsoumis, G. 1991. *Science and Technology of Wood: Structure, Properties, and utilization*, Van Nostrand Reinhold, New York, 494 pp.

9-Zobel, B.J. & Van Buijtenen J.P., 1989. *Wood variation*, Springer-Verlag, Berlin Heidelberg, 363 PP.

## A Study of Fiber Saturation Point (FSP) Variations in Iranian Beech by "Porous Pressure Plate" Method

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### Abstract

Variations in fiber saturation point (FSP) along the longitudinal axis and through the cardinal directions, in beech tree (*Fagus orientalis* Lipsky) were investigated. Specimens, from two sound beech trees cut from Veisar forest (Caspian natural hardwood forest in Iran) were prepared. Then, 4 disks from different intervals in each tree trunk were taken. The experiments were performed on the specimens taken systematically from the four geographical directions in each disk. To determine the FSP of never-dried specimens, "porous pressure plate" method was employed. Then, the values obtained were statistically analyzed. The results indicate that FSP variations through the longitudinal axis do not follow a regular pattern and that they are not significantly different. Nevertheless, it was observed that the first height (at 215 cm) carries a minimum value (27.1%) while the third height (i.e., at 555 cm) a maximum (31.0 %). FSP variations (in the four directions) in the beech tree do not seem to be significantly different. The highest and the lowest values were found to be respectively present on the eastern and western sides of the trees.

**Keywords:** Fiber Saturation Point (FSP), Porous Pressure Plate Method, Iranian Beech.

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