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***Medicago***

***Trifolium pratense Sanguisorba minor Trifolium repens sativa***

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*Sanguisorba minor Trifolium repens Medicago sativa*

*Trifolium pratense*

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*Medicago sativa Trifolium pratense*

*Trifolium Trifolium pratense Sanguisorba minor Medicago sativa,* , :

*repens*

( ) ( )

( ) ( )

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( )

*Atriplex*

*nummularia*

( )

*Atriplex nummularia*

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Stomatal transpiration  
 Cuticular Transpiration  
 Lenticular Transpiration  
 Gravimetric Method  
 Lysimeter

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Ecological Crisis  
 Transpiration  
 Leaf Area Index, LAI

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 ( )

*Pinus ponderosa*

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)  
*Tr. Tr. repens M. sativa* ( ) .(  
*Sa. minor pratens Solanum melogenea*

|  
*M. sativa* . ( )

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( ) .( )  
*Tr. repens Bromus tecturum*

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*Tr. pratens* . ( )  
*Phragmites australia*

*Sa. minor* .

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Excel

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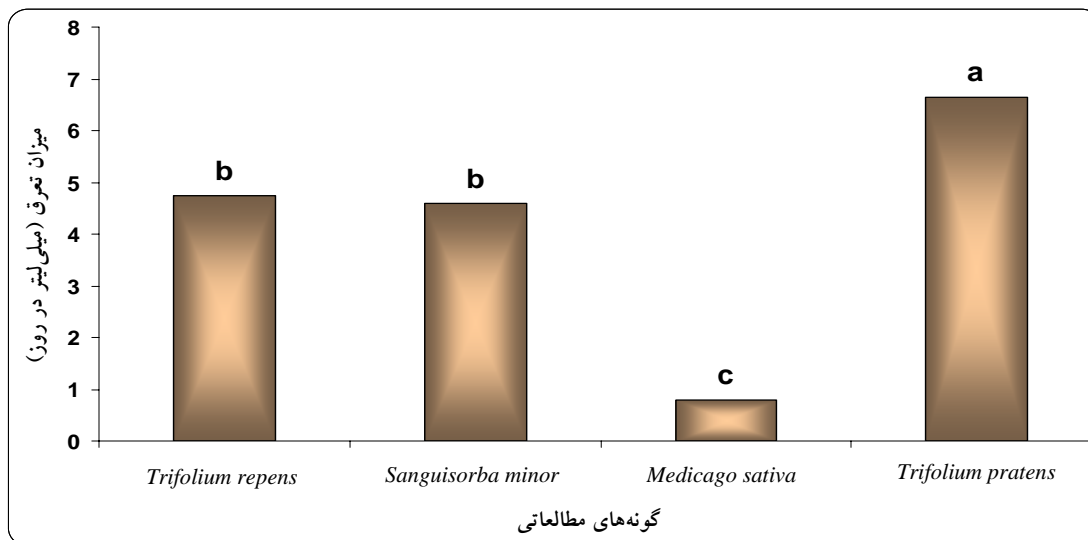
*Trifolium repens* *Medicago sativa*  
*Trifolium pratense* *Sanguisorba minor*

<i>Tr. pratens</i>	<i>Sa. minor</i>	<i>Tr. repens</i>	<i>M. sativa</i>	
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*M. sativa* *Tr. pratens*

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*Tr. pratens*

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| *M. sativa*

*M. sativa*

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*Tr.*

*M. sativa pratens*

*Tr. repens Sa. minor*

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*Tr. pratens*

*M. sativa*

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## Comparative study of transpiration and dry matter production in rangeland species of *Medicago sativa*, *Trifolium repens*, *Sanguisorba minor* and *Trifolium pratens*

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### Abstract

Recognition of rangeland species with the maximum efficiency and the minimum water usage is very important, since major parts of rangelands in Iran are located in arid and semiarid climate. In addition, the rangeland improvement and management on the basis of transpiration rate of rangeland species in different climatic conditions has great importance. The goal of this research is comparison and measurement of transpiration rate in four important species of *Medicago sativa*, *Trifolium repens*, *Sanguisorba minor* and *Trifolium pratens* as well as the assessment of their efficiency in dry matter production under semi natural conditions in College of Natural Resources and Marine Sciences, Tarbiat Modares University, during spring and summer of 2005. The rates of daily transpiration of the mentioned species were measured in small vases with upper area of 50.27cm<sup>2</sup> in 5 replications and adjacent to five control vases during 85 days using weighting method. The results of the study showed that the maximum and minimum rate of transpiration per dry matter is related to *Trifolium pratens* and *Medicago sativa* with the values of 498.253 and 59.274 ml, respectively. The applications of such type of result facilitates the determination of water requirement of rangeland ecosystems under improving operations and also lead to select the most suitable improvement method and rangeland species as well.

**Key words:** Daily transpiration, Weighting method, *Medicago sativa*, *Trifolium repens*, *Sanguisorba minor*, *Trifolium pratens*.