

**Title** Determination of ripening stage in date cultivar 'Barhi' by the level of ethylene emission  
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### **Abstract**

'Barhi' dates change their color from green to yellow during ripening and they are marketed as slightly astringent yellow fruits. 'Barhi' dates which contain above 25-27% total soluble solids (TSS) are regarded as matured and will have the desirable color, taste and texture. In order to improve the quality of 'Barhi' dates postharvest life, we study various indices, for determination of the best stage for fruit harvesting. During breaking stage from green to yellow there is an increase in ethylene emission which decreased when the fruit color was changed to complete yellow. There is high correlation between increased yellowing expressed as hue angle and reduction in ethylene emission. The decrease in ethylene production rate was also highly correlated with levels of TSS which was determined by NIR (near infra-Red) spectrometry. Highest ethylene production rate was found in yellow fruits with low TSS of 17%, while, high TSS level of 37% was correlated with low ethylene production rate. It is note worthy that in fruits with high TSS levels (37%) although ethylene levels are low in the first week after harvest, later during storage at 20°C, ethylene levels was increased probably because of fungal contamination. Our results show that ethylene production rate can be a good index for determination of 'Barhi' maturity.