

Title Nuclear magnetic resonance technique application in evaluating the quality of navel orange during storage

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Abstract

Low field nuclear magnetic resonance technique was used to evaluate the quality and behavior of water in navel orange during storage in different temperature. NMR Carr-Purcell-Meiboom-Gill (CPMG) sequence was used to acquire the samples' activated echo signals. A multi-exponential regression model was used to calculate the spin-spin relaxation time (T₂) of samples in different storage period. The relative chemical contents such as acidity, reducing sugar et al were analyzed at the same time during the different period of storage. A trend of T₂ change was observed in the state diagram T₂ vs storage time. T₂ values rise in the initial stage and then changed little in the following steady period and go down quickly at the end before the samples decay during the period of storage. A T₂ going down quickly processing before decay were observed in nearly all samples. This method would be help for evaluating the quality of navel orange storage in the future.