

EVOLUTION OF *DEGLET-NOOR* DATE QUALITY ON IT HEAT TREATMENTS. I – COLOR, II – TEXTURE

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Improving the quality of the Deglet-Noor date is required for fulfilling more and more stringent requirements by importing countries. Heat treatments are common ways for dehydration and de-infestation (to replace the actual methylbromide fumigation). Our current works lead us to study the effects of such heat treatments on two main quality criteria : a clear colour and a soft texture. Heat treatments must be conducted in controlled conditions to avoid non-enzymatic browning, but they must be sufficient for inactivation of the enzymes involved in enzymatic browning. We performed hot air drying (60 – 80 °C, 65 % RH, 2 m/s). The mechanical properties were measured using the RHEO TA-XT2 texturometer. A first stage of our studies was to select the more discriminant operating conditions, with the least variability, when applied to a range of dates, ranked from very soft to semi-hard specimen. For the colour measurements, we had to master methodological problems of reflectance chromametry, in relation of the surface structure of the product and the broad variability of results. We used two equipment, acting on the same principle, but slightly different in details (Minolta CR-300 and Micro-flash Data Colour) for measurements (whole fruit and derived pulp) on a series of 7 dates, constituting a range of darkness. Among CIE Lab parameters and derived expressions, we selected those with the best reproducibility and rank correlation with visual impressions. The two measuring apparatus may give different results according to the parameter considered. Analysis of texture and colour evolution after different heat treatments allowed interesting correlation and knowledge of kinetic features of the considered phenomenon, leading to a time-temperature range of acceptable values for maintaining a good quality for the processed material.