

**Title** Chemical and aroma volatile compositions of date palm (*Phoenix dactylifera* L.) fruits at three maturation stages

**Author** El Arem Amira, Flamini Guido, Saafi Emna Behija, Issaoui Manel, Zayene Nesrine, Ferchichi Ali, Hammami Mohamed, Helal Ahmed Noureddine and Achour Lotfi

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### **Abstract**

The effect of maturity stage on the physicochemical composition and volatile components of date palm fruits (*Phoenix dactylifera* L.) was investigated at three different stages. Total sugars, pH, proteins and ash increased up to the full-ripe stage of all date types. On the contrary, weight, moisture and total lipids decreased across the same period. Pearson's test established significant differences ( $p < 0.05$ ) between the different cultivars at each stage for all the parameters. Furthermore, multivariate tests show that the composition and the variation of the chemical compositions mainly depended on the cultivar kind. Eighty volatile compounds were identified during the maturation stages, 43 of them were newly identified in Tunisian date fruits. The profiles of volatile compounds seem to be similar for Degla and Horra varieties. Results from this work revealed essential information about the richness of littoral cultivars in many nutrients and the possibility of their uses as a functional food ingredient.