

# Researchers prove the benefits of persimmons for diet

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Alba Mir and Ana Domingo, researchers from the Department of Analytical Chemistry of the University of Valencia, under the supervision of professors Miguel de la Guardia and Maria Luisa Cervera, from the same department, have determined the mineral profile of 167 persimmons produced between 2010 and 2011 and coming from different Spanish regions: 4 from Alicante, 11 from Andalucía, 10 from Castellón, 3 from Extremadura, 13 from Valencia, 113 from La Ribera (a region within Valencia) bearing the protected designation of origin (PDO) Kaki Ribera del Xúquer, and 13 from outside the PDO area within La Ribera.

The persimmon (*Diospyros kaki* L.) is a fruit native to China nowadays cultivated in warm regions all around the world. Valencia –and, specifically, La Ribera del Xúquer– is one of the major kaki producers in Spain. According to the information from the Fundación Cajamar for 2013, in 2012 the total kaki-growing area in Spain was 9,560 hectares, 83% of which were located on Valencian lands.

Rojo Brillante is a variety of astringent persimmon cultivated in La Ribera del Xúquer which bears the protected designation of origin Kaki Ribera del Xúquer, with a production around 25 million kilograms per year. This region, located mainly on the low plains of the rivers Xúquer and Magre, enjoys favourable conditions for the cultivation of this fruit, with a mild climate, an average temperature of 17°C and an average annual rainfall of 400-500 mm, and is protected against frosts by the surrounding mountains. These environmental conditions are responsible

for the quality and shape of the kaki from La Ribera del Xúquer. In hot-dry climates the height-to-diameter ratio of the persimmon is greater, which is a differentiating characteristic from fruits not covered by the PDO status. "The analysis of variance (ANOVA) is used to compare whether the values of a set of data are different from the values of other sets or not, and in this study the ANOVA has identified significant differences between the samples coming from different Spanish regions. And that is why, with the analysis of the mineral profile, we offer a way of authenticating the PDO Kaki Ribera del Xúquer", has explained Ana Domingo.

The Rojo Brillante variety of persimmon is highly sought after for its excellent nutritional qualities. But, in addition to the economic and traditional reasons for cultivating this fruit in La Ribera del Xúquer, for professor Miguel de la Guardia "it's also important to know its chemical composition, particularly its contents in minerals and trace elements, because it may offer a route for authenticating the kaki produced within the area covered by the protected designation of origin. In addition, in a healthy diet the adequate intake of certain elements is key for maintaining healthy normal physiological functions".

Professor Maria Luisa Cervera explains that "the main purpose of this study was to determine the mineral profile of persimmons from different areas in Spain. We classified the results as adequate, insufficient or toxic in the daily intake of minerals after consuming the kaki, and we characterised the samples produced with the PDO Kaki Ribera del Xúquer". The RDA (recommended dietary allowance) is the average daily amount of a nutrient that a person should eat to maintain good health. Thus, making a thorough analysis of the mineral profile of foodstuffs, including their essential and toxic elements, is of great importance for the purpose of knowing their contribution to the recommended daily quantities.

Alba Mir assures that "it can be concluded that the intake of calcium (1-10%), iron and magnesium (1-15%) through the consumption of a piece of kaki (200-400 g) in our diet is adequate according to the recommended dietary allowance (RDA). Persimmons provide high levels of potassium and copper (1-30%) and very low levels of zinc and sodium (up to 4%). These data suggest that persimmons could be a healthy option for people suffering from heart conditions or hypertension, as well as for the wider population".

The paper by the University of Valencia researchers "Mineral profile of kaki fruits (*Diospyros kaki* L.)", published in the prestigious journal *Food Chemistry*, contributes to adding more value to Valencian crops, in addition to employing the mineral profile of this fruit as a way to authenticate the production areas with the protected designation of origin.

**More information:** Alba Mir-Marqués, Ana Domingo, M. Luisa Cervera, Miguel de la Guardia. "Mineral profile of kaki fruits (*Diospyros kaki* L.)." *Food Chemistry* 172 (2015) 291–297.  
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