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Nutritional and phytochemical properties of *Opuntia ficus-indica* (L.) Miller fruits from Portugal

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Opuntia ficus-indica (L.), commonly referred to a cactus pear, belongs to the Cactaceae family, characterized by a remarkable adaptation to arid and semi-arid climates, in tropical and subtropical regions of the globe. In Portugal, it is known as "figueira do diabo".The fruit can be used in the production of jams, in cosmetic applications and folk medicine, based on its bioactive compounds and biological/pharmacological properties [1].

The aim of this study was to compare the proximate composition of three fruit varieties (red, yellow and green) of *O. ficus-indica* provided by a local producer in Torres Novas, Portugal. Nutritional parameters were determined using AOAC official methods [2]. In addition, total phenolics and total flavonoids contents, DPPH• inhibition and the ferric reducing antioxidant power (FRAP) of the samples were also assessed by spectrophotometric procedures [3]. Antioxidants extraction was performed using different solvents: (a) 100% water, (b) water/ethanol (1:1), and (c) 100% ethanol.

The nutritional profile of the three fruit varieties is presented in Table 1. In general, these fruits are poor in fat and a source of dietary fiber, especially insoluble one. Although the proximate composition is similar for all the samples, the red fruits presented a slightly higher content of protein. In turn, yellow fruits contained the highest levels of total minerals.
Regarding the antioxidant activity, the mixture water/ethanol (1:1) allowed the most efficient extraction. The red fruits showed the highest antioxidant activity among all the samples, while the green ones had the lowest score.

Table 1. Proximate composition of *Opuntia ficus-indica* fruit varieties.

Sample	Moisture (%)	Ash*	Fat*	Protein*	Total fiber*	Insoluble fiber*	Soluble fiber*	Carbohydrates*
Red	80.53±1.22	3.86±0.06	1.50±0.09	6.40±0.41	27.27±0.36	19.96±0.30	7.80±0.60	60.90 ± 0.16
Yellow	80.69±0.99	4.19±0.07	1.30±0.10	4.09±0.28	26.76±0.05	18.10±0.50	8.60±0.50	62.62 ± 0.10
Green	79.79±1.16	3.96±0.07	1.20±0.06	5.33±0.27	29.64±0.90	20.90±0.20	8.70±0.08	60.16 ± 0.03

Results are presented as mean ± standard deviation of replicates(n=3);*expressed in g/ 100g dw

The results of the different fruit varieties can be useful to better understanding the differences among them and help consumer to make a cleared purchase decision. This study also aims to improve the knowledge and the demand of these fruits by the Portuguese population.

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