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# Nutritional Value of Desert Fan Palm Fruits

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The Cahuilla Indians of the Southern California deserts were known to utilize fruits and seeds of the desert fan palm, *Washingtonia filifera*, as a food resource (Parry 1881, Chase 1919). The fruits ripened in late summer through early fall with healthy trees producing up to 15 infructescences per palm and up to 18 kg of fruit per infructescence (Cornett 1985). In wet years, the total harvest could reach 600,000 fruits and a total of 270 kg per tree. Cahuilla women usually sun-dried the fruits and stored them in clay jars. Later, the entire fruits would be soaked in water and then ground into flour in bedrock mortars (Cornett 1987). The relative importance of this food resource has not been determined although Indian villages and campsites are frequently associated with desert fan palm oases (Cultural Systems Research 1983, Cornett 1987). Information on the nutritional value of *W. filifera* fruits could shed light on their value as a food resource.

Fruits, including seeds, were analyzed for their nutritional content by Shankman Laboratories in Los Angeles, CA. The results are listed in Table 1 along with data on the nutritional value of singleleaf pinyon (*Pinus monophylla*), honey mesquite (*Prosopis juliflora*), and black oak (*Quercus kelloggii*), other food plants of the Cahuilla (Bean and Saubel 1972). Of special interest is the comparison between fruits of the desert fan palm and mesquite. Mesquite is a common oasis plant whose importance as a food resource is often touted by anthropologists (Bean and Saubel 1972, Heizer and Elsasser 1980). Nutritional information on two other palm gen-

era has been included as they are known to occur within oases containing *W. filifera*.

Based on a content of 384 calories per 100 g of fruit and a 3,000 calorie daily requirement, the fruit harvest from a single desert fan palm would provide a human with enough food for up to 200 days. In addition, as shown in Table 1, the carbohydrate percentage of desert fan palm fruits is considerably higher than other Indian food plants including the mesquite. However, desert fan palm fruits have significantly less protein; less than half that of mesquite. This information compliments the early literature regarding palm fruit usage by suggesting that *W. filifera* fruits had the potential of being an important dietary mainstay. The situation could have been similar to the role of the date palm, *Phoenix* spp., in the old world.

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Table 1. Nutritional analysis of desert fan palm (*Washingtonia filifera*) fruits including seeds. Nutritional analysis of analogous parts of other Indian and non-Indian food plants are provided for comparison. Calories (Cal) are per 100 g. Protein (Pro) thru ash are % by weight. Calcium (Ca) thru riboflavin (Ribo) are mg/100 g.

Species of Fruit	Cal	Pro	Fat	Carbo	Fib	Ash	Ca	Ph	Ir	A	Th	C	Ni	Ribo
<i>Washingtonia filifera</i> <sup>1</sup> (desert fan palm)	348	3.1	2.8	77.7	10.4	5.4	110	89	7.8	180	0.06	5.0	1.0	0.13
<i>Pinus monophylla</i> <sup>2</sup> (singleleaf pinyon)	—	10	2.3	54	—	—	—	—	—	—	—	—	—	—
<i>Prosopis juliflora</i> <sup>3</sup> (honey mesquite)	—	8.3	2.4	52.0	—	—	—	—	—	—	—	—	—	—
<i>Quercus kelloggii</i> <sup>3</sup> (black oak)	—	4.6	18.0	55.5	11.4	1.6	—	—	—	—	—	—	—	—
<i>Brahea</i> sp. <sup>4</sup> (blue palm)	—	5.6	9.2	—	—	—	—	—	—	—	—	—	—	—
<i>Phoenix dactylifera</i> <sup>4</sup> (date palm)	354	2.8	0.6	94.1	3.0	2.5	76.1	81.3	3.9	38.7	0.12	0.0	2.84	0.13
Barley <sup>5</sup>	—	8.7	1.9	71.0	5.7	—	—	—	—	—	—	—	—	—
Wheat <sup>5</sup>	—	11.4	1.0	75.4	0.2	—	—	—	—	—	—	—	—	—
Corn <sup>5</sup>	—	9.2	1.9	74.4	1.0	—	—	—	—	—	—	—	—	—

Notes: Cal, calories; Pro, protein; Carbo, carbohydrates; Fib, fiber, Ca, calcium; Ph, phosphorus; Ir, iron; A, carotene (as Vitamin A); Th, thiamine; C, vitamin C; Ni, niacin; Ribo, riboflavin.

Reference codes: 1, Shankman Laboratories; 2, Lanner 1981; 3, Bean and Saubel 1972; 4, Atchley 1984; 5, Heizer and Elsasser 1980.



1. Fruits of *Washingtonia filifera*.

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