

## INTRODUCTION

In February 2021, the United Nations predicted that the world population will exceed 9.7 billion by the year 2050. The demand for food will also increase, and this will have a major impact on food production, transportation, trade, and marketing. In addition to this, in recent years there has been an increased preference for healthy foods, i.e. low in calories, low in saturated fat but with a high fiber content. *Opuntia ficus-indica* (L.) Mill, considered a "super crop" by FAO because of its nutritional characteristics, is a xerophytic plant widespread in arid and semiarid regions.

## OBJECTIVE

Study the potential of the cladodes, produced in the Alentejo region, as a food source.



Grilled Cladodes.



Cladode salad. A recipe from Mexico.



## METHODS

Cladodes of two different genotypes regularly raised in Alentejo, were collected in an orchard near Évora, owned by PepeAromas (38°44'19.9"N; 7°48'52.2"W). An analysis of the nutritional compounds was performed in the physicochemical laboratory of the Centro de Apoio Tecnológico Agro Alimentar (CATAA), in Castelo Branco.

The analysis focused on calcium, potassium, sodium, iron, copper, phosphorus, manganese, magnesium, zinc and moisture content. For comparative purposes, a distinction was made between the analysis of cladodes collected from cactus figs of the "red" variety and cladodes collected from cactus figs of the "orange" variety.

In the laboratory of the University of Évora, the fiber content and proteins are also determined.

## RESULTS

There are some differences between the two varieties, but in both cases there are residual values of sodium and manganese.

Similar to the prickly pear fruit, calcium and magnesium levels are high, however potassium is the main mineral in the cladodes.

The values obtained in this study are higher than those found in others.<sup>1,2</sup>

There are studies that report that cladodes have higher nutritional value than lettuce or spinach.<sup>1</sup>

According to some studies, cladodes have very high values of vitamins, namely vitamin C and provitamin A.<sup>1,3,4</sup>

Parameters with results < QL are parameters whose results were residual and not possible to determine.

Parameter	"Orange" Variety	"Red" Variety
Calcium (mg/100g)	194.8	176.6
Potassium (mg/100g)	212.6	220.4
Sodium (mg/100g)	<LQ	<LQ
Copper (mg/100g)	0.041	0.0042
Iron (mg/100g)	0.134	0.107
Phosphorus (mg/100g)	21.08	23.68
Manganese (mg/100g)	<LQ	<LQ
Magnesium (mg/100g)	90.0	71.5
Zinc (mg/100g)	0.172	0.146
Moisture (%)	94.28	94.78

Parameter	Result (g/100g)
Protein	4.64
Fat	1.98
Fibers	12.85

Protein, Fat and Fiber values are much higher than those reported by studies using cladodes produced in Egypt<sup>5</sup>.

In the study the protein is 1.39 g/100g, 0.11 g/100g for Fat and 4.14 g/100g for Fiber content.

## CONCLUSION

Preliminary results show that there is a high potential of cladodes as food, with high values of calcium, magnesium and potassium. These results, associated with the fact that this is a crop of low environmental impact, adapted to situations of water scarcity, make cladodes a product with growing food interest, which can enrich the human diet mainly in arid areas.

## REFERENCES

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