

THE EFFECT OF CAÑIHUA (*CHENOPODIUM PALLIDICAULE* AELLEN) ON IRON STATUS OF RURAL WOMEN IN RISK OF ANAEMIA IN PUNO, PERU

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Abstract

The indigenous plant Cañihua has a high iron content of 12mg/100g. To study the effect of the inclusion of Cañihua into the diet on the iron status, 25 women in risk of developing iron deficiency anaemia of Puno, Peru, received during 7 weeks a daily preparation of Cañihua. After the nutritional intervention, the women had significantly higher haemoglobin-levels than before. It can be suggested that Cañihua is a good nutritional iron source, qualified to make an important contribution to the iron supply of humans and capable of improving mild anaemia.

Introduction

Cañihua (*Chenopodium pallidicaule* Aellen) is a little studied, very nutritive native Andean food crop. The cultivation of the plant is mainly located in the Altiplano of Peru and Bolivia and in the mountains of Cochabamba (Bolivia), where it grows up to altitudes of 4200 m. In Peru, the Cañihua production is mainly concentrated in the department of Puno with nearly 90% of the national production, these are some 4000 t per year with a yield of 0.70 t/ha. In this department, some 50% of the families cultivate Cañihua, but the per-capita-consumption is less than 1 kg/person/year (Repo-Carrasco, 1988; Reynoso and Paredes, 1998; Tapia et al., 1979).

In addition to its generally low demands for inputs and a high resistance to frost, drought, saline soils and pests, Cañihua has a high iron content of 12mg/100g (Tablas Peruanas de Composicion de Alimentos, 1996). This high level positions Cañihua as the grain product of highest iron content. The species is therefore of interest in regions with a predominately cereal- and vegetable-based nutrition with iron deficiency problems. In the Altiplano of Peru high rates of iron deficiency anaemia can be observed, especially in women from poor rural families, where the prevalence in non-pregnant women of fertile age is up to 35%.

Subjects and Methods

25 non-pregnant and non-lactating women in risk of developing anaemia (haemoglobin-level 13.5-15.0 mg/dl blood, in an altitude of 3850 m) of Puno, Peru, received during 7 weeks a daily preparation containing 50 g of Cañihua and by this 6 mg of iron, together with 100 mg Vitamin C (which increases the iron absorption). The preparations consistend in cakes, biscuits, bread or Canihuaco. As a parameter for the iron status, haemoglobin values were analysed weekly.

Results

Nutritional interviews showed that none of the women fulfilled the daily iron requirements before initiation of the trial.

After the test period, the women had statistically significant higher haemoglobin-levels than before, and these levels were within a healthy range. The average rise in haemoglobin levels after the nutritional iron intervention was 1.43 g/dl blood.

Discussion

The main problem of the actual Peruvian alimentation is the increasing consumption of industrialised products, paying little importance to native food crops. Especially peasant families and families in marginal urban districts are using food of poor nutritional value, and selling products of better quality (Paredes, 1998). The principal cause for anaemia is the inadequate consumption of iron rich food, especially in women of fertile age, because they have elevated requirements (Presidencia de la Republica, 1998).

The problem of iron deficiency anaemia is usually addressed by medical iron supplementation. However, to promote an attempt for a sustainable, nutritional solution, the effect of a daily complementation with Cañihua on the haemoglobin levels, and thus on the iron status has been investigated.

Conclusion

It can be suggested that Cañihua is a good iron source, and that the available iron from 50 g of Cañihua plus 100 mg Vitamin C per day is a successful way to obtain a satisfactory iron supply, which is capable of improving mild anaemia. Thus Cañihua is qualified to make an important contribution to the iron supply of humans.

As there is little research to date on Cañihua for human nutrition, the present study is an input to a wider understanding of the possibilities of Cañihua for a healthy nutrition. It was seen that there is lack in information of the Peruvian population about Andean crops, especially Cañihua. A wider knowledge of the practicability of Cañihua would improve the subsistence of the local people, in terms of nutrition but also of cultural, traditional and economic background.

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