

# Amendment on Beltroega (*Portulaca oleracea* L) and its Cultural Amplifications

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## ABSTRACT

*The potential of purslane (*Portulaca oleracea*) has attracted the attention of extensionists, technicians and researchers due to its rusticity, adaptability, and may be an alternative to diversify and improve the nutritional quality of the diet. The methodology used was a mixed survey (qualitative and quantitative), applying a literature review and the distribution of an online questionnaire to obtain reliable and broad-spectrum results to assess knowledge on the subject. It is concluded that the precociously imposed data, as well as the evaluated and interpreted results, reflects in such a way that the interviewees demonstrated that they know and have already made use of medicinal plants, in addition to recommending their use and highlighting their importance.*

**Keyword:** - Purslane; nutritional; medicinal plants

## 1. INTRODUCTION

*Portulaca oleracea* L. is an herbaceous succulent with a warm climate, an annual plant of cosmopolitan distribution belonging to the *Portulacaceae* family. It is commonly known as purslane in the United States, Australia, and Brazil. It is widely distributed in tropical and subtropical areas of the world, including many parts of the United States, and is added to soups and salads around the Mediterranean and tropical countries of Asia. Americans and Australian aborigines grind the seeds of this plant into flour for use in porridge and bread [1].

*Portulaca oleracea* also provides a source of nutritional benefits due to its rich omega-3 fatty acids and antioxidant properties. *Portulaca oleracea* has been used as a folk medicine in many countries, acting as a febrifuge, antiseptic, vermifuge, and so on. It has a wide range of pharmacological properties, including antibacterial, antiulcerogenic, anti-inflammatory, antioxidant and healing properties. It is listed by the World Health Organization as one of the most used medicinal plants, and has been given the term “global panacea”. Chinese folklore has described it as a “vegetable for long life” and it has been used for thousands of years in Traditional Chinese Medicine. Easily found in nature, it has a sour taste and is used to stop bleeding, as well as being indicated to treat fever, dysentery, diarrhea, anthrax, eczema and hematochezia, with a recommended dose of 9-15g [12].

Purslane is an Unconventional Food Plant that deserves special attention from farmers as well as nutritionists, as it is an excellent source of omega-3, having one of the highest levels of omega-3 among green leafy vegetables. This PANC contains more of this fatty acid than is available in some fish oils, some algae and flaxseeds.

Purslane is considered a common weed throughout Brazil, where it infests cultivated soils, orchards, gardens, vegetable gardens, nurseries and coffee plantations. It prefers soils rich in organic matter, where it is an indicator of a good pattern of soil fertility.

It is a widely distributed vegetable, considered as a cosmopolitan species and one of the most used medicinal plants listed by the World Health Organization (WHO), popularly known in Brazil as purslane, black salad, caaponga, porcelain, bredo-de- pork, verdolaga, petit purslane, red purslane, garden purslane and eleven-hour purslane [3].

The objective of this work is to illustrate an overview, systematic review and evaluation of evidence interposed towards the consumption and knowledge of PANC plants as a whole, since plant products offer a vast repertoire of chemical diversity that, in turn, can provide a number of key frameworks, in addition to therapeutic challenges, chemistry diversity and biodiversity.

## 2. METHODOLOGY

The mixed method is defined as the process of collecting, analyzing and combining quantitative and qualitative techniques where the main assumption that proves the rationality of the multimethod approach is that the interaction between them provides better analytical possibilities.

A questionnaire was prepared, with simplified questions and short answers based on the articles studied, making a correlation between the results that are intended to be obtained and the final results. Through the free Google Forms platform, it was distributed online, free of charge and at random to several respondents, emphasizing age and gender as a record.

Composed of 11 questions, ranging from multiple choice and essay, the base intention was defined according to the materials found in the literature.

The questionnaire was available for a period of one month (September 4th to September 20th, 2022) and disseminated by the most common and easily accessible media.

In the end, 73 individuals were interviewed. After the interview, the data were tabulated and analyzed according to the proportion of responses in the Microsoft Excel 2010 software, then the results were described and compared with the results described in the literature. The following electronic databases were used: PubMed, Scielo and Lilacs. The search terms were constructed using "PANC plants" and "purslane".

### 3. RESULTS AND DISCUSSION

Brazil has a great biodiversity of plants rich in nutrients and minerals, these rustic plants, adapted to local conditions, many considered weeds, pests in conventional agriculture. Unconventional vegetables are a food alternative and an option for agricultural activity [4], which can generate work, employment and income, in addition to being plants with excellent nutritional value, easy to grow and low cost [9].

Unconventional food plants are characterized as an alternative to diversify and improve the nutritional quality of the diet of low-income populations, as they can be easy to grow, resistant, have good productivity and can be grown at home or in small community gardens.

When asked about the importance of maintaining a healthy diet, 70% of the participants declare that they have a good diet, since the average age of the interviewees was 41 years old and 94% were female.

Participants were asked about their knowledge of the term unconventional food plants, or PANCs. 71.6% of respondents claimed to have no knowledge of any of the terms. This value is higher than that found in the study by Narcisa-Oliveira et al (2018) of 55% of people who were unaware of the terms. Such a significant portion of respondents who are unaware of the terminology may indicate the lack of information, dissemination and incentives for the insertion of PANCs in the diet.

*Portulaca oleracea* L. (Beldroega), belonging to the Portulacaceae family, known as annual weed, has drawn attention due to its rusticity in the field, its use as a vegetable, spice and in traditional medicine, being an agricultural crop with socio-environmental potential that meets the need for family farming and communities at risk and social vulnerability.

If the consumption of purslane was requested, 55.6% of the participants answered yes. The proposal to promote changes in eating habits, rescuing local, cultural and food practices carried out by ancient peoples, plants with high nutritional content, will only be possible with a permanent and continuous educational process, socializing and making the population aware of the consumption of food plants. unconventional.

It was found that the use of unconventional food plants, rich in nutrients and minerals, as a food complementation strategy, is pointed out as an alternative to minimize the situation of malnutrition and poor diet worldwide.

Purslane is reported as an excellent source of compounds, mainly fats, such as omega-3 and omega-6, organic acids and phenolic compounds, which have high antioxidant power [7]. It contains saponins [3] and flavonoids [13].

Purslane seeds can be used for human consumption, being able to extract an oil with a good ratio between fatty acids, which can be incorporated into human food [10].

The concentration of alpha-linolenic acid in purslane leaves is higher than that found in spinach (*Spinacia oleracea* L.), mustard (*Brassica juncea* L.), sorrel (*Rumex acetosa* L.) and beetroot (*Beta vulgaris* L.), being lower to that found in several species of fish, which are recognized as rich sources of this fatty acid [8].

Purslane is, admittedly, the plant richest in fatty acids. Both alpha-linolenic acid and linoleic acid are not synthesized by humans, but allow the synthesis of other elements, such as prostaglandins (Palaniswamy et al., 2002), this synthesis being their main benefit, since that these originated elements play important roles in certain organs of the human body (Lorgeril and Salen, 2004), which shows the importance of consuming sources of these fatty acids, which is found in large amounts in purslane.

The flavonoids of *P. oleracea* L. are the biologically active constituents, which have been most described in the literature, due to their antioxidant, antibacterial, antiviral and anti-inflammatory properties (Xu, 2006).

According to Odhav et al. (2007), purslane has a composition, per 100 g of dry weight, of 1361 mg of calcium, 333 mg of phosphorus, 148 mg of sodium, 24 mg of manganese, 3 mg of copper, 34 mg of zinc, 1037 mg of magnesium, and 42 mg of iron.

In many parts of the world it is still considered a "weed with potential nutritional content" being described as a "food of the future", due to its high nutritional content and antioxidant properties.

## 4. CONCLUSIONS

*Portulaca oleracea* is of great importance to the food industry and also has a broad spectrum of pharmacological properties, such as neuroprotective, antimicrobial, antidiabetic, antioxidant, anti-inflammatory, antiulcerogenic and anticancer activities, which are associated with its diverse chemical constituents, including flavonoids, alkaloids, polysaccharides, fatty acids, terpenoids, sterols, proteins, vitamins and minerals.

Although the bioactivities of extracts or compounds isolated from *Portulaca oleracea* are proven using *in vitro* and *in vivo* studies, including animal models and cell culture studies, the mechanisms of action have not been addressed. Therefore, more mechanistic studies are needed before *Portulaca oleracea* can be considered for further clinical use. This review concludes that *Portulaca oleracea* is an edible and important PANC plant for the food industry and may also have a significant role to play in healthcare provided that adequate studies are conducted.

## 5. REFERENCES

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