Foods 2024 Conference

The 5th International Electronic Conference on Foods

28–30 October 2024 | Online

MDPI

Nutritional and functional composition of microgreens: A comparison of various species

Roxana Elizabeth González[1,2], Verónica Carolina Soto[3]

1 Instituto Nacional de Tecnología Agropecuaria (INTA), EEA La Consulta, Mendoza

2 Facultad de Ciencias Exactas, Universidad Nacional de Cuyo, Ciudad, Mendoza

3 Instituto de Biología Agrícola de Mendoza (IBAM), CONICET, Facultad de Ciencias Agrarias, Mendoza

INTRODUCTION & AIM

In the last few decades, society has shown a growing interest in healthy eating and lifestyle, with increased demand for fresh, ready-to-eat foods with functional value. Referring to this trend, micro-scale vegetables, including microgreens, have gained special attention as an alternative for consumption, due to their potential to diversify and improve the human diet and address microelement and nutrient deficiencies, as well as providing a high content of phytochemicals with functional properties. Nowadays, there is an increasing demand for regular consumption of these products, and some of them are sold on the market.

The objective of this work was to evaluate the nutritional and functional composition of microgreens of different species.

Keywords: Bioactive compounds, microvegetables, human health

METHODS

The selected species were beet, pea, adzuki bean, popcorn, onion, and carrot (Fig. 1).

The nutritional composition was determined following the official analysis methods of the AOAC (Association of Analytical Communities) (i.e., water, crude fat, crude protein, ash, crude fiber and minerals).

The content of total phenolic compounds[1], flavonoids[2], chlorophylls a and b, and total carotenoids[3] and *in vitro* antioxidant activity[4] were evaluated by spectrophotometry.

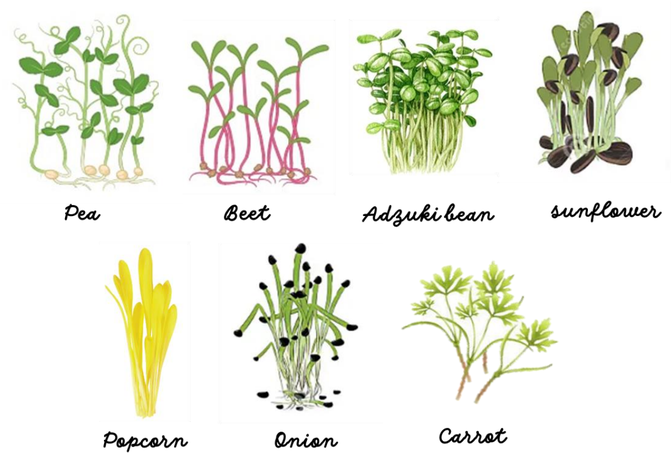

Figure1. Species of microvegetables evaluated

RESULTS & DISCUSSION

- Significant differences were found in the nutritional value and caloric intake between the species under study, with carrot and onion microvegetables standing out for their mineral, calcium, and potassium content and crude fiber (Fig 2).
- Regarding the pigment content, the adzuki bean microgreens showed the highest levels of chlorophylls and carotenoids (1295.4 µg%g fw, 295.49 µg%g, respectively), Fig 3.
- For total phenolic compounds and flavonoids, onion and carrot microvegetables had the highest content of these bioactive compounds; carrot had 891.34 mg%g fw of total phenols, and onion had 445.68 mg%g fw (Fig 3). These species also had the highest in vitro antioxidant capacity, with 85% and 95%, respectively, Fig. 4.

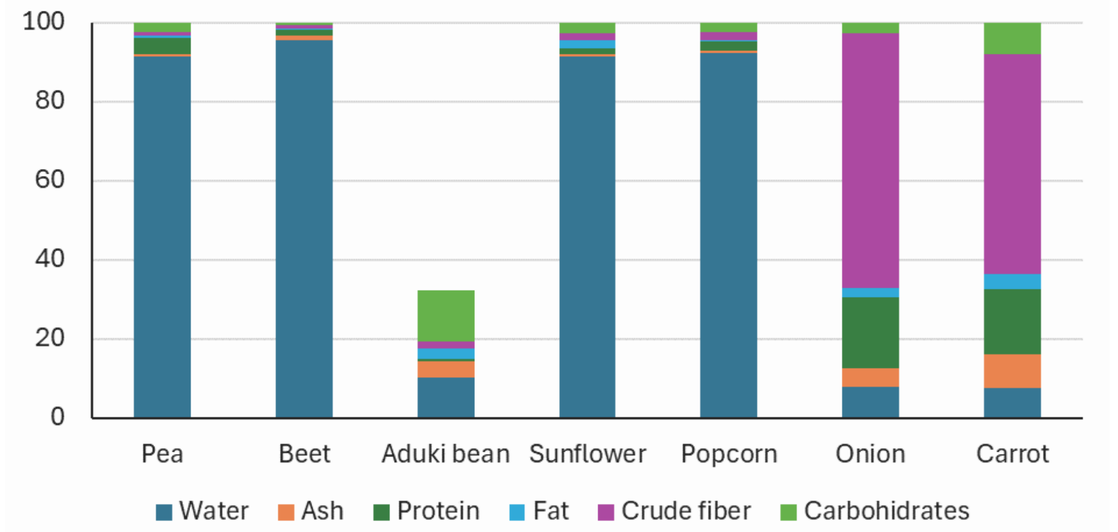

Figure 2. Proximate composition of microgreens studied.

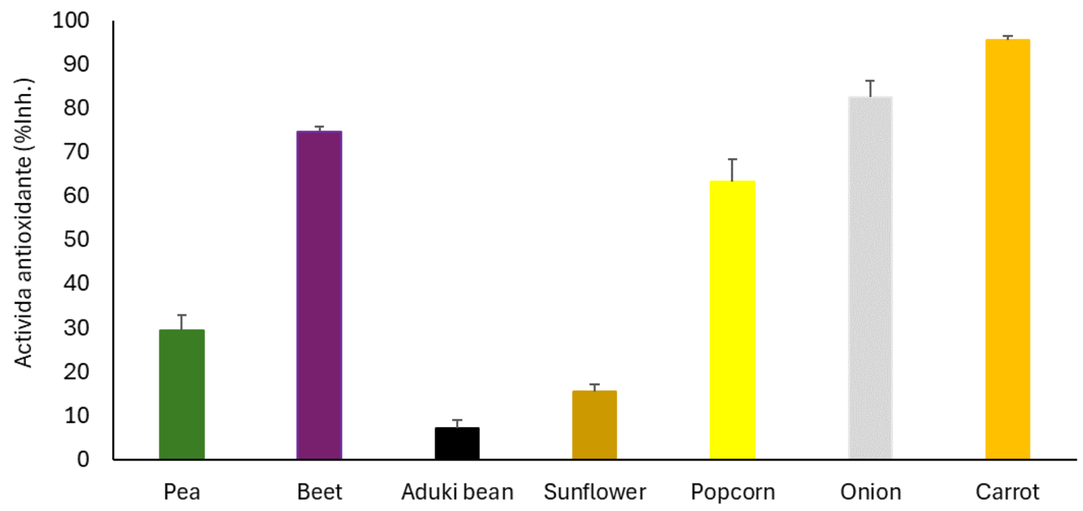

Figure 4. Antioxidant activity of microgreens

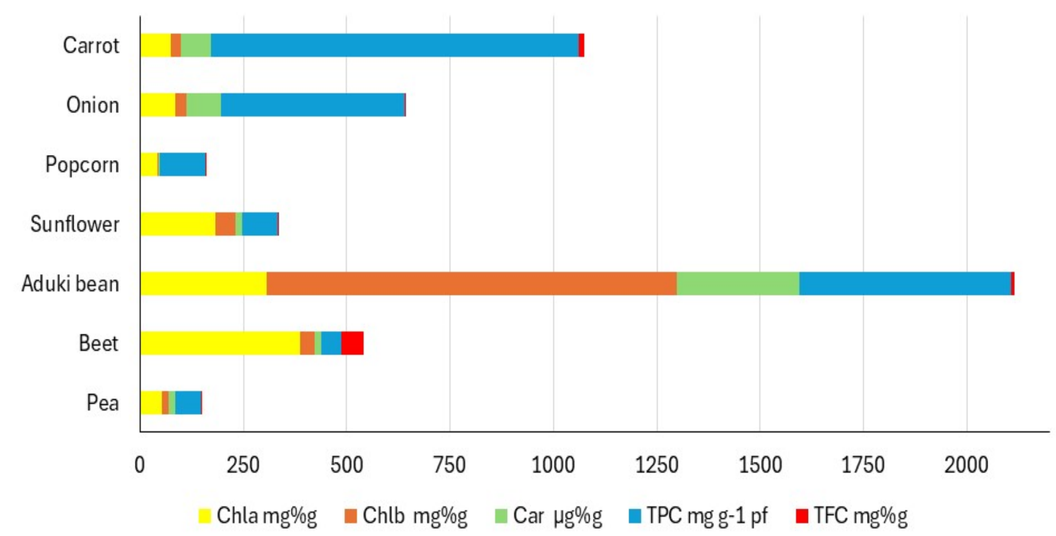

Figure 3. Bioactive compounds of microgreens

CONCLUSION

The results obtained show that microvegetables are an excellent alternative to fresh foods, with high nutritional and functional value.

References

1. Lemos, Soto, Wuilloud, González. *Food Analytical Methods*, 2024, 17:1281.
2. Aryal, Baniya, Danekhu, Kunwar, Gurung, Koirala. *Plants,* 2019, 8:1.
3. Lanza Volpe, Soto, Morón, González. *Proceedings* 2021, 70(1):52.
4. Altuner , Tuncturk, Oral, Tuncturk. *Journal of Elementology*, 2022, 27(1): 165.

Acknowledgments

This work was supported by a grant of Instituto Nacional de Tecnología Agropecuaria (INTA), project PE I 119.