



CHEMICAL AND ORGANOLEPTIC PROFILE OF PASTA FORTIFIED WITH ARONIA (*ARONIA MELANOCARPA*) AND JUJUBE (*ZIZIPHUS JUJUBA MILL.*)

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Introduction

In recent years, fruits such as Aronia (*Aronia melanocarpa*) and jujube (*Ziziphus Jujuba mill*) have spread worldwide thanks to their high content of antioxidants, as a functional food.

The components of the chokeberries (that it is the common name are dependent on a series of factors such as cultivar, fertilization, maturation of the berries, harvest date, or habitat/location as indicated above. The chemical composition of berries or freshly pressed juice distinguishes it from other berries by its high contents of sorbitol and polyphenols.



Jujube is an edible and delicious fruit, which has various health benefits. It is extensively cultivated in tropical and subtropical regions, especially in East Asia (China, India). It belongs to the Rhamnaceae family and is referred to as *Ziziphus* (genus *Ziziphus*).

The fruit is considered a great source of bioactive components, including polyphenols, triterpenic acids, polysaccharides, nucleosides, and nucleobases. Jujube is thus recognized as one of the rich sources of functional food.



Materials and methods

This work aimed to develop a protocol to produce pasta, extruded as tagliatelle, with antioxidant properties thanks to the addition of these two fruits.

Durum wheat semolina from Italy has been partially substituted by 5% of the different fruits.



Four types of tagliatelle were produced:

- 1-Pasta Control (100% durum wheat semolina, 70 ml of water, and 2 g of salt)
- 2-Pasta with 5% dry powder of Aronia
- 3-Pasta with 5% semi-dry powder of Aronia
- 4-Pasta with 5% of jujube



Materials and methods

The obtained tagliatelle was analyzed for the phenolic component, antioxidant activity, and mineral content present during the formation of the dough, after drying, and after cooking.



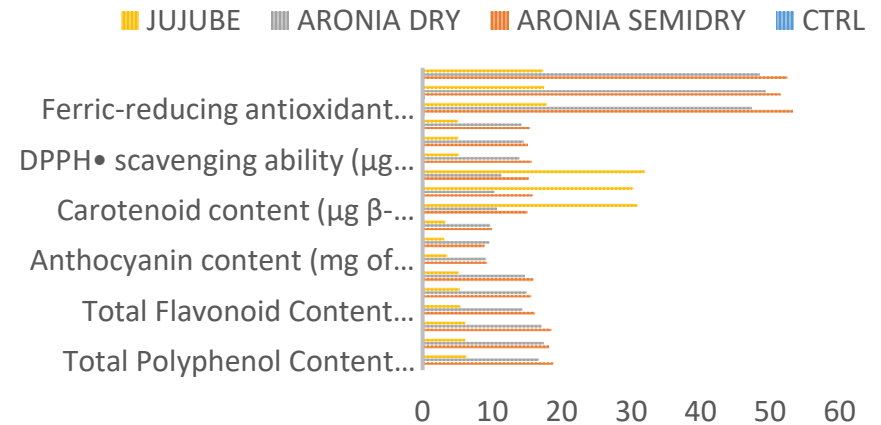
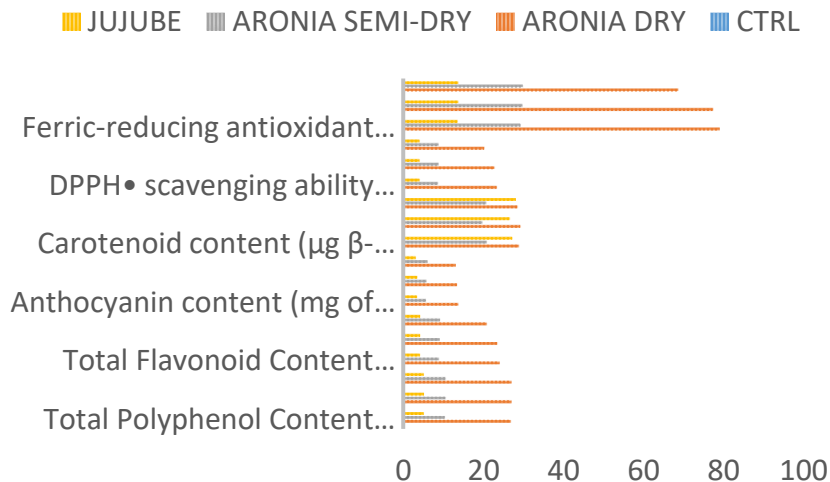
Raw and cooked tagliatelle were evaluated for their :

- Chemical (total polyphenol content, total flavonoid content, anthocyanins, carotenoids, and antioxidant activity).
- Organoleptic properties
- Rheological



Results and discussions

The results confirmed the high value of bioactive compounds, and the consumption of this product will be a worthy healthy food.





Conclusions and recommendations

This study shows that the incorporation of flour in pasta increases its nutritional properties and aligns with the growing demand for fortified products and the growing interest in the use of agri-food waste in the food chain.

Through the fortification process, a significant increase in polyphenols was achieved without significantly affecting the rheological effects of the final product.

Despite increasing consumer interest in these fortified products, their development and design must balance the percentage of plants/extracts or by-products and sensory attributes to ensure consumer satisfaction.

Since traditional pasta in Sicilian and Mediterranean cultures is mainly composed of durum wheat, the incorporation of freeze-dried material at 5 % is a valuable strategy to increase its nutritional properties to the benefit of human health and a link with the production of other countries.



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Thank you for your attention!

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December 3-6, 2023, București



One Health
Student Conference
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