

Enhancement of *Apulian Black Chickpea* and durum wheat *Senatore Cappelli* for the production of functional foods

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State of the Art

This project falls under the framework of the promotion of traditional and resilient crops like *Apulian Black Chickpea* (ABC) and *Senatore Cappelli* (SC) durum wheat to boost food sustainability and improve human health.

Apulian Black chickpea (ABC) is a native variety of Murgia Carsica in the Apulian region. It has the size of a grain of corn and an uneven and wrinkled peel. It is darker and bigger than common “*desi*” types¹ and resilient to extreme temperatures, requiring minimal irrigation². Nutritionally, it is rich in fiber, anthocyanins, carotenoids, and polyunsaturated fats, making it valuable for developing functional foods³.

SC wheat, introduced in the 1920s, is known for its rusticity, adaptability, and high yield. Despite being more vulnerable to diseases and maturing slower than modern cultivars, it produces high-quality semolina⁴. It is rich in fiber, proteins, and antioxidants⁵, and creates excellent-quality pasta despite its lower gluten content compared to modern wheat varieties⁶

Aim of PhD project

The main goal of this project is to Contribute to the United Nations’ Sustainable Development Goals (SDGs), particularly Goal 2 (Zero Hunger), Goal 3 (Good Health and Well-being), Goal 11 (Sustainable Cities and Communities), and Goal 12 (Responsible Consumption and Production). Traditional crops like *Apulian Black Chickpea* and *Senatore Cappelli* wheat, with their resilience to climate change, can be cultivated in marginal areas, thus improving food sustainability. Additionally, these varieties can be used to develop new functional food products, valorizing local resources and promoting biodiversity.

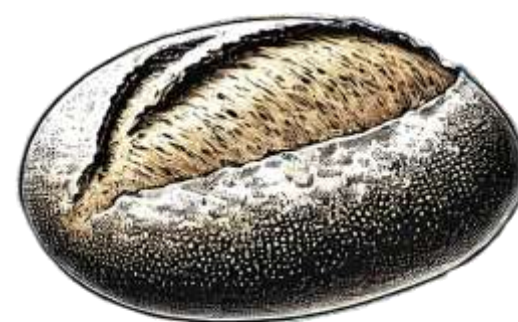


Table 1 Gantt diagram for this PhD thesis project.

Activity	Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A1) Protocol set up for the fermentation and baking of bread with ABC and durum wheat SC flours:		█	█	█	█	█	█	█	█	█	█	█	█												
A2) Protocol set up for the fermentation and pasta-making with ABC and durum wheat SC flours													█	█	█	█	█	█	█	█					
A3) Protein bar with ABC protein isolate																					█	█	█	█	█
A4) Writing and editing		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

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