28th Workshop on the Developments in the Italian Ph.D research on Food Science, Technology and Biotechnology

Catania, 18-20 September 2024

Food Design for the formulation of new healthy and sustainable grain-based foods for pregnant and preconception women

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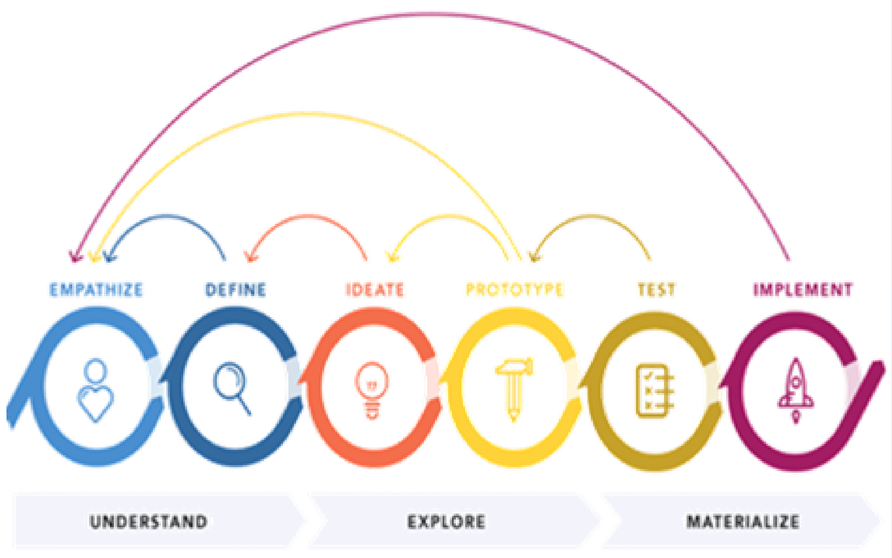
The project aims to design healthy and sustainable cereal-based foods for women in periconception and pregnancy stages to improve their nutritional status. Design Thinking methodology will be used. To assess target needs a Systematic Review, Sentiment Analysis and Market Analysis will be carried out. Soft Italian wheat cultivars, pea protein concentrates, and fruit waste will be analyzed for their nutrient content (e.g., folate, iron, bioactive compounds), with some being selected for the design of new products. New foods with enhanced nutritional value for women in childbearing age and pregnancy stages will be developed and tested through sensory evaluations.

DESIGN THINKING

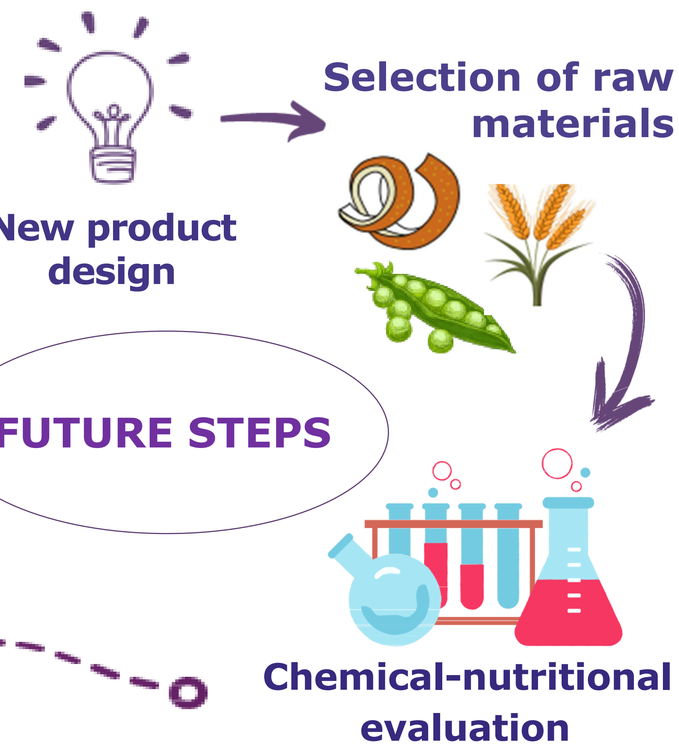


It is a design process used to solve a complex problem through 5 stages involving a trans-disciplinary approach. It places the user front and center, focusing on empathy.

TARGET ANALYSIS

Highlights

- Few foods are specifically targeted for pregnant women;
- The importance of proper nutrition in pregnancy research is often underestimated;
- In childbearing age, folate and iron are the main deficiencies.



Gantt diagram

	Activities	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	25	26	27	28	29	30	31	32	33	35	34	35	36
A1)	**Evaluation on pregnancy nutritional deficiency, needs and emotional orientation**																																					
	A1.1) Systematic review of literature																																					
	A1.2) Sentiment Analysis																																					
	A1.3) Market analysis																																					
A2)	**Food Design**																																					
	A2.1) Design of new sustainable and healthy cereal products																																					
	A2.2) Nutritional Analysis of raw materials from Italian cereal cultivars, legumes and fruit wastes																																					
A3)	**Obtaining of raw ingredients enriched in key nutrients and bioactive molecules**																																					
	A3.1) Milling and pearling to obtain cereal by-products naturally enriched in micronutrient																																					
	A3.2) Green methodology to obtain bioactive compound extracts																																					
A4)	**Formulation of new products**																																					
	A4.1) Formulation of new cereal foods																																					
	A4.2) Labelling and health claims																																					
A5)	**Organoleptic evaluation of new formulations**																																					
	A5.1) Descriptive sensory test																																					
	A5.2) Affective test																																					
A6)	**Products, dissemination of results and PhD Thesis publication**																																					