



UNIVERSITÀ DEGLI STUDI DI MILANO

SELEZIONE PUBBLICA, PER TITOLI ED ESAMI, PER IL RECLUTAMENTO DI N. 1 UNITÀ DI TECNOLOGO DI SECONDO LIVELLO CON RAPPORTO DI LAVORO SUBORDINATO A TEMPO DETERMINATO DELLA DURATA DI 18 MESI, PRESSO L'UNIVERSITÀ DEGLI STUDI DI MILANO - DIPARTIMENTO DI SCIENZE PER GLI ALIMENTI, LA NUTRIZIONE E L'AMBIENTE, PER L'ATTUAZIONE DELLA PROPOSTA PROGETTUALE DAL TITOLO "ON FOODS - RESEARCH AND INNOVATION NETWORK ON FOOD AND NUTRITION SUSTAINABILITY, SAFETY AND SECURITY - WORKING ON FOODS" (CUP G43C22002610001), PER IL PARTENARIATO ESTESO PE10 - MODELLI PER UN'ALIMENTAZIONE SOSTENIBILE, NELL'AMBITO DEL PIANO NAZIONALE DI RIPRESA E RESILIENZA (PNRR) - CODICE 22303

La Commissione giudicatrice della selezione, nominata con Determina Direttoriale n. 9686 del 14/06/2023, composta da:

| | |
|-----------------------------------|------------|
| Prof.ssa Patrizia Riso | Presidente |
| Prof. Diego Mora | Componente |
| Dott.ssa Ester Rossi | Componente |
| Dott.ssa Alessandra Maria Magenga | Segretaria |

comunica le tracce relative alla prova.

TRACCIA n. 1

SULLA BASE DELLA SCHEDA RIASSUNTIVA DEL PROGETTO **EFFORT** (ALLEGATA IN VERSIONE INGLESE) SVILUPPARE IN POWER POINT UNA PRESENTAZIONE SINTETICA IN ITALIANO E INGLESE DI DESCRIZIONE DEL PROGETTO E DEI DELIVERABLE INDIRIZZATA A UNA PLATEA DI ESPERTI DEL MONDO PRODUTTIVO (ES. CON INTERESSE AL TRASFERIMENTO TECNOLOGICO) - (MAX 5 SLIDE PER LINGUA)

REFORMULATION OF FOOD PRODUCTS (EFFORT)

Reference spoke: 4

Reference partner: UNIMI

PIs: Daniela Martini, Patrizia Riso

Other participants: Massimiliano Tucci

Other partners involved: Bolton Food, Barilla, Tecnoalimenti, UNIPR, UniCatt, CREA, UNIBO, UNIROMA1

WPs involved: WP4.1: Product and Process Innovation

TASK involved: T.4.1.1: Reformulation or improvement of relevant food products
T.4.1.3: Food quality and sustainable nutrition within the catering and distribution system

Duration: 30 months

State of the art (max 1000 caratteri spazi inclusi):

Sodium, sugar and saturated fat (SFA) intake in the Italian population is still higher compared to the dietary recommendation, while fiber and omega-3 intake is far below. An inadequate intake of these components is associated with an increased risk of non-communicable diseases (NCDs). In many developed countries, including Italy, a significant proportion of sodium, sugar and SFAs in the diet comes from packaged foods added by manufacturers, while fiber content is often low also in products belonging to food groups naturally source of fiber such as cereal-based foods. Thus, an effective way to reduce population intake of sodium, sugar, SFA and to increase fiber intake is through the reformulation of foods that are consumed frequently and are therefore contributing to most of the intake of these components.



Operational plan (max 1000 caratteri spazi inclusi):

The project will consist of various operational steps that can be summarized as follows:

1. Identification of the main categories of products contributing to salt, SFA, sugar and fiber intake in the Italian population by considering the actual food consumption in the general population and in different target groups
2. Analysis of salt, SFA, sugar and fiber content in food products (both branded and private labels, PL) currently on the Italian market
3. Hypothesis of reformulation of branded and PL food products to reduce salt, SFA, sugar content and increased fiber content
4. Evaluation of the potential impact of the inclusion of reformulated branded and PL food products on salt, sugar, SFA and nutrient intake in the Italian population based on actual food consumption data.

Expected results (max 1000 caratteri spazi inclusi):

The project will enable to simulate the practical benefits in terms of reduced salt, SFA, sugar and increased fiber intake achieved through the reformulation of several food categories.

To this aim, a list of food categories contributing to the intake of these nutrients in the Italian population will be provided. More, a simulation of the potential impact of the inclusion of reformulated food products on salt, sugar, SFA and fiber intake in the Italian population will be performed.

Project deliverables:

D4.1.1.1. Selection of raw materials/ingredients with improved nutritional characteristics and limited undesirable components (M12)

D4.1.3.4. Improvement of private label products strategy to better target nutritional needs and environmental and social sustainability (M30);

Interaction with other Spoke/s:

Spoke 5, Spoke 6, Spoke 7

Missing competences to be searched outside the partnership (optional):

- Companies providing market share data

TRACCIA n. 2

SULLA BASE DELLA SCHEDA RIASSUNTIVA DEL PROGETTO TUNNEL (ALLEGATA IN VERSIONE INGLESE) SVILUPPARE IN POWER POINT UNA PRESENTAZIONE SINTETICA IN ITALIANO E INGLESE DI DESCRIZIONE DEL PROGETTO E DEI DELIVERABLE INDIRIZZATA A UNA PLATEA DI ESPERTI DEL MONDO PRODUTTIVO (ES. CON INTERESSE AL TRASFERIMENTO TECNOLOGICO) - (MAX 5 SLIDE PER LINGUA)

ROLE OF TUNA CONSUMPTION IN HEALTHY AND SUSTAINABLE DIETARY MODELS (TUNNEL)

Reference spoke: 4

Reference partner: BOLTON - UNIMI

PIs: Alberto Dolci (Bolton), Patrizia Riso, Daniela Martini (UNIMI)

Other participants: Massimiliano Tucci, Mirko Marino, Simone Perna

Other partners involved: UNIBO

WPs involved: WP4.1: Product and Process Innovation

WP4.3: Healthy, Sustainable and Personalised/Precision Nutrition

TASKS involved: T4.1.3 Food quality and sustainable nutrition within the catering and distribution system



T4.3.1 Development and validation of sustainable models of personalised/precision nutrition

Duration: 36 months

State of the art

The role of animal-source foods (ASFs) in healthy and environmentally sustainable diets is currently source of debate. Indeed, on one hand, ASF are generally characterized by a higher environmental impact compared to plant-based foods. On the other hand, ASF are sources of important and bioavailable nutrients, which can be critical nutrients especially in vulnerable groups of the population. For this reason, it is crucial to investigate the role of ASF in the context of sustainable healthy diets taking into consideration also the nutritional needs of target population/vulnerable groups, also in real-life settings such as canteens.

Among animal ASF, fish among which tuna is an important source of nutrients, such as protein with high biological value, long-chain omega-3 polyunsaturated fatty acids (W3) and several essential vitamins and minerals. In addition, canned tuna is a relatively cheap and convenient ASF and thus can play a role in sustainable healthy diets, which should be not only nutritious and environmental-friendly but also safe, desirable and affordable.

Currently, there is a limited knowledge about the nutritional and environmental impact of sustainable healthy diets including canned tuna, especially through studies developed and performed in real-life settings. This could allow to identify the possible role of tuna in healthy and sustainable dietary models,

Operational plan

The research will involve different activities as reported below.

- Overall evaluation of the nutritional quality and environmental impact of theoretical dietary patterns including or not canned tuna
- Analysis of the nutritional quality and environmental impact of menus including or not canned tuna provided by the catering system (in collaboration with spoke 5 and 7)
- Optimization of theoretical dietary patterns and menus to improve nutritional quality and environmental impact, especially considering at risk nutrients such as vitamin B12, D and W3
- Development and management of intervention studies with meals/dietary patterns including canned tuna in order to assess actual food intake, eating behavior, diet quality, nutritional status and related markers (in collaboration with spoke 5 and 7)

Expected results

- Identification of nutritional/functional beneficial effects and/or possible criticisms associated to the inclusion of canned tuna in sustainable healthy diets
- Analysis of the environmental impact associated to the inclusion of canned tuna in sustainable healthy diets
- Definition of nutritional characteristics and environmental impact of the menus including or not canned tuna provided by the catering system and targeted to different groups of the population (in connection with Spoke 5 and 7)
- Validation of sustainable healthy menus including canned tuna in real settings, though the evaluation of the impact on eating behavior and associated outcomes

Project deliverables:

D4.1.3.2. Implemented dietary programmes redirecting menus and dietary offers with lower environmental impact, implemented nutritional quality and safety, and increased affordability of national collective catering (M24);

D4.3.1.1. Identification and mapping of specific target groups (M12);

D4.3.1.3. Definition of personalised/precision sustainable dietary patterns based on measurable factors (M24)

Interaction with other Spokes:



Spoke 5, Spoke 7

Missing competences to be searched outside the partnership

TRACCIA n. 3

SULLA BASE DELLA SCHEDA RIASSUNTIVA DEL PROGETTO **UTOPY** (ALLEGATA IN VERSIONE INGLESE) SVILUPPARE IN POWER POINT UNA PRESENTAZIONE SINTETICA IN ITALIANO E INGLESE DI DESCRIZIONE DEL PROGETTO E DEI DELIVERABLE INDIRIZZATA A UNA PLATEA DI ESPERTI DEL MONDO PRODUTTIVO (ES. CON INTERESSE AL TRASFERIMENTO TECNOLOGICO) - (MAX 5 SLIDE PER LINGUA)

MICROBIAL FUNCTIONS INTERFERING WITH HOST PHYSIOLOGY (UTOPY)

Reference spoke: 4

Reference partner: UniMI

PIs: Diego Mora

Other participants: Patrizia Riso

Other partners involved: SACCO System.

WPs involved: WP4.1, product and process innovation
WP4.3 healthy, sustainable and personalized precision nutrition

TASK involved: Task 4.1.2 (bio)process innovation
Task 4.3.1 Personalized and sustainable nutrition
Task 4.3.2 Bioavailability and bioactivity
Task 4.3.3 Gastrointestinal effects of foods.

Duration: 36 months

State of the art

The role of the human microbiota and microorganisms associated with food on the health of individuals is supported by an increasingly number of evidence (De Filippis et al., FEMS Microbiol Rev 2020; Sanlier et al., Crit Rev Food Sci 2019). Close correlations and specific molecular mechanisms with individual bacterial species have been highlighted, thus identifying cause and effect on the physiology, nutritional state, and health of the host (Sanders et al., Curr Opin Biotech 2018; Singh et al., Crit Rev Microbiol 2021). In addition, when beneficial microbes such as probiotics are considered, it is also known that the way they are industrially produced can significantly interfere with their probiotic properties (Duboux et al., Front Microbiol 2021). Based on the above consideration It is now therefore possible to design new food products enriched in specific beneficial microbes or new food supplements based on probiotics which are produced using innovative production process able to guarantee the enrichment and the efficacy of their probiotic traits. New food products and new food supplements will also require the identification of new criteria to assess their quality.

Operational plan

The operational plan will be organized as follow.

- Development of plant-based functional beverage; Plant/fruit-based beverage will be co-fermented with selected lactic acid bacteria and probiotics/postbiotics. Lactic acid bacteria will guarantee the stability and the safety of the product whereas probiotics/postbiotics will ensure the functionality and the consumers health effect.
- Enhancement of health associated factors in probiotic production; This activity is aimed to set-up industrial production processes to specifically enhance the quantity/activity of specific



molecules/enzymes/metabolic pathways, thus introducing as new quality criteria for probiotic evaluation, the measurement of a specific probiotic activity and not only the cell count as it is nowadays. The efficacy of probiotics will be evaluated in vitro, and in vivo in murine and human by intervention studies.

Expected results

- optimization of the starter culture composition and fermentation parameters to produce soia/oat fermented beverage enriched in probiotics belonging to the following species: *Lactocaseibacillus rhamnosus*, *L. plantarum*, *Bifidobacterium animalis* subsp. *lactis*, *Lactobacillus acidophilus*
- production of probiotics biomasses enriched in β -galactosidase, urease, arginine deiminase activity, and vitamin B2 production, aimed to: improve lactose digestion in lactose-intolerant subjects, decrease the colon inflammation in IBD and IBS patients, reduce periodontal inflammation and implement B2 assumption in the diet

Project deliverables:

D4.1.2.4. Development or improvement of at least 3 biotechnological approaches to innovate food production in terms of nutritional quality, safety, and sustainability (M30);

D4.1.2.5. Identification of new process and product markers (M30)

D4.3.1.2. Identification of selected biomolecules to evaluate personalised nutrition interventions (M24);

D4.3.2.2. Evaluation of the bioavailability and bioactivity of at least two components of foods proven to directly impact human health (M36);

D4.3.3.2. Evaluation of the impact of relevant new foods on microbial ecosystem and host response (M36)

Interaction with other Spoke/s:

Spoke 2, Spoke 3, Spoke 5.

Missing competences to be searched outside the partnership (optional):

Milano, 3 luglio 2023

La Commissione

Prof.ssa Patrizia Riso - Presidente

Prof. Diego Mora - Componente

Dott.ssa Ester Rossi - Componente

Dott.ssa Alessandra Maria Magenga - Segretaria