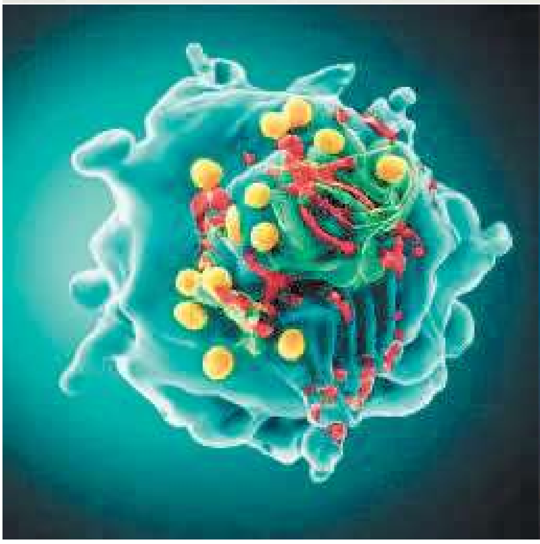
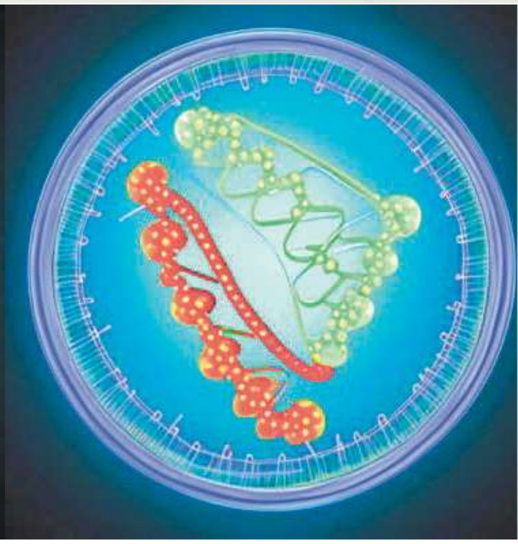
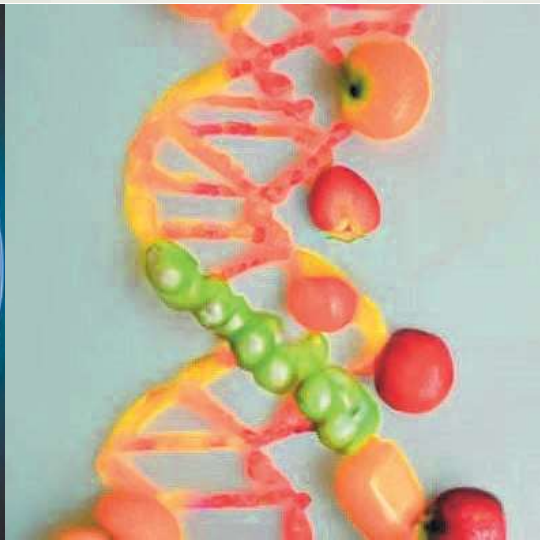
FoodOmics 2024

7th International Conference

2009-2024, fifteen years on from.
Where are we now, what's next.

14-16 February, Cesena (Italy)

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ABSTRACT BOOK

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Fruit juice beverages enriched with an innovative ingredient from clementine by-product.

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Nowadays, the organic waste and by-products generated during food processing represents a great challenge for institutional authorities and researchers both from an economic and environmental point of view. On the other hand, they are rich in substances with high added value. From a circular economy perspective, maximising the use of food resources also through the valorisation and reuse of by-products can reduce problems in waste management and environmental pollution. The aim of this study was to develop a beverage with added an innovative ingredient derived from clementine juice processing by-product. The formulation was based on a blend of ACE juices which was enriched with the innovative ingredient. In particular, the ingredient was produced through a biotechnological process based on a non-thermal pre-treatment - Pulsed Electric Field (PEF) – and microbial fermentation of the clementine by-product added with water by a selected strain of Saccharomyces cerevisiae. Then, different formulations of the ACE drink, based on orange, carrot and lemon juices, were prepared by supplementing the fermented clementine by-product at different contents. Overall, 9 beverages were prepared and characterised for β-carotene, vitamin C, total phenolic content (TPC) and volatile compounds (GC/MS-SPME analysis) in comparison to the control one (not supplemented with the innovative ingredient). Overall, the beverages presented improved functional properties compared to the control drink being the TPC and β-carotene contents strongly increased in the relation to the amount of innovative ingredient added. Based on the aroma profile, the ACE drink enriched with the fermented citrus by-product showed also higher contents of terpene compounds, such as β-carene, terpineol, cymene. In conclusion the use of by-products for food purposes appears to be a promising strategy for their valorisation and cost reduction for their management as wastes.

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