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**1st European Symposium on
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Book of abstracts

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VII_IL2_Plants as a source of natural preservatives for food application

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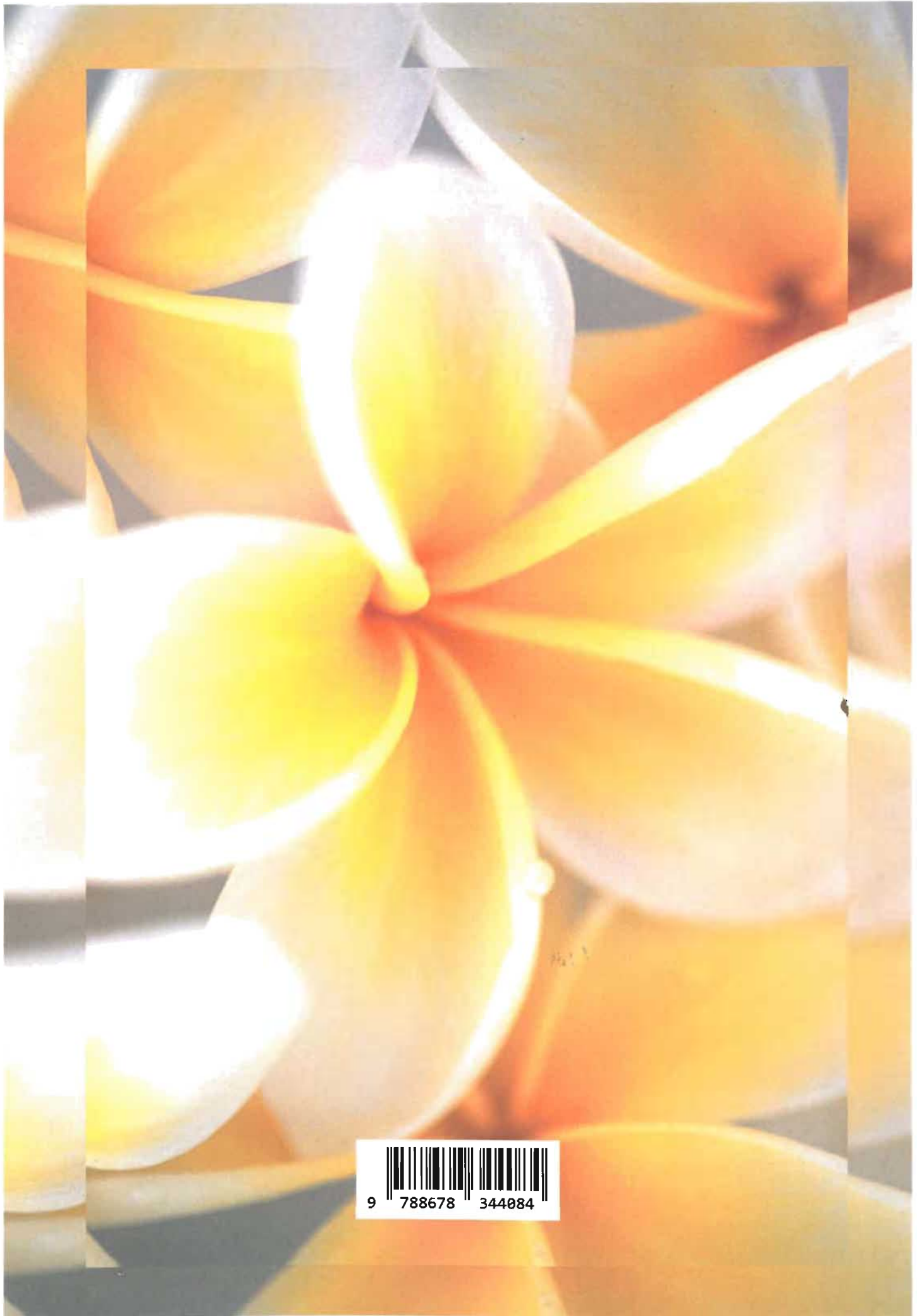
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One of the main challenges of the food industry has been the substitution of artificial additives for natural ones. In a world increasingly demanding for healthy foods, functional products, clean labels etc., it is urgent to develop safer, healthier alternatives to preserve foods. Nature has been a fascinating source of distinct classes of compounds (e.g. phenolics, organic acids), recognized for their bioactive properties, namely antioxidants and antimicrobials, two essential attributes to be considered a natural preservative, in addition of having low/no toxicity effects.

To promote the circular economy and sustainability in the agri-food sector, these molecules have been obtained from industrial bioresidues that represent a significant amount of non-valuable raw material, often disposed in landfills, causing a significant negative environmental effect. Given their richness in high added-value compounds, natural matrices such as plants/fruits have been under exhaustive exploitation to obtain added value molecules with significant antioxidant and antimicrobial properties to act as natural preservatives. The focus has been dedicated to the extraction, stabilization, and viability of application in the food sector. Therefore, extracts rich in phenolic compounds (e.g. catechin, quercetin and luteolin derivatives), phenolic acids (e.g. rosmarinic, chicoric, lithospermic, caffeic, caffeoylquinic acids), and hydrolysable tannins (e.g. trigalloyl-HHDP-glucoside) obtained from basil, rosemary, sweet chestnut flowers, sage, oregano; as also in organic acids (citric acid) obtained from citrics, have been subjected to extraction optimization, bioactive evaluation for incorporation in food matrices such as cheese, muffins, yogurts, wine, beer and nutraceuticals, to act as natural preservatives. The main achievements were the development of innovative products in which the shelf-life was extended, or the artificial preservatives were substituted as in the case of yogurts, cheese, muffins and nutraceuticals, highlighting the ChestWine and SpraySafe formulations. ChestWine is a preservative natural extract that is able to substitute the addition of sulphites in wines, and SpraySafe is an edible biofilm that can be applied in foods such as cheese, mushrooms or fruits to substitute the use of plastic wrap. These findings are pertinent and absolutely needed because they provide real alternatives to the use of artificial additives.

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