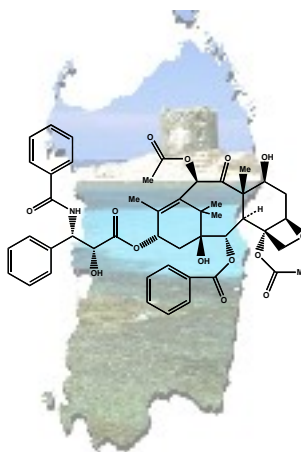




SardiniaChem2008

GIORNATA DI STUDIO DEDICATA
ALLA CHIMICA ORGANICA
DELLE MOLECOLE BIOLOGICAMENTE ATTIVE

30 Maggio 2008, Aula Magna della Facoltà di Scienze – Sassari



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EFFECTS OF SUPPLEMENTATION WITH VEGETABLE EXTRACTS ON PHYSICO-CHEMICAL, ANTIOXIDANT AND MICROBIOLOGICAL PROPERTIES OF YOGURTS

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Yogurt is a fermented dairy product obtained by lactic acid fermentation of milk by the action of yogurt starter bacteria, *Streptococcus salivarius* subsp. *thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus*, whose fermentative activity gives rise to many metabolites. In yogurt there are many antioxidant substances which show possible beneficial physiological effects^[1] and retard the lipid oxidative rancidity in food^[2] as proteic and not proteic fraction, vitamins, oligoelements and phenolic endogenous and exogenous compounds. To meet wishes of consumers, almost all of industries have produced for a long time a wide variety of supplemented yogurts, flavoured with honey, coffee, chocolate or synthetic sweeteners or enriched with mashed fruits, cereals, functional components^[3] and vegetable polyphenols with well-known antioxidant activity^[4,5].

The objective of this work was the evaluation of physico-chemical properties, antioxidant capacity and microbiological vitality of in laboratory prepared yogurts, whose fermentation was conducted in presence or in absence of different vegetable extracts: artichoke (*Cynara scolymus* L.) edible (ED) and not edible (NED) part, strawberry-tree (*Arbutus unedo* L.) fruits at two different stages of ripening, ripe (red) and unripe (yellow) fruits, cherries (*Prunus avium* L.), compared to commercial yogurts supplemented with vegetable extracts or with antioxidant factors.

Laboratory supplemented yogurts demonstrated an antioxidant activity higher than those of all white samples and in some cases than those of commercial supplemented yogurts. This was observed particularly for the yogurt with artichoke edible part and for the yogurt with strawberry-tree red fruits extract, which was the most active (Figure 1).

Ten days after their preparation, some samples of yogurt prepared in laboratory showed an increase in lactic acid (D and L) and acetaldehyde, while variations of antioxidant components were irrelevant and antioxidant activity was almost unchanged. As far as the microbial

survival is concerned, over the experimental period of three weeks, it is remarkable the interesting increase in microbial count of *Lactobacilli* and *Streptococci* in yogurts with strawberry-tree extracts and with artichoke edible part extract at time 0 after fermentation, and the persistence of *Lactobacilli* in yogurt with artichoke edible part till the first week of experiment.

The obtained results indicate that the supplementation of yogurts with extracts can significantly improve microbial survival and enhance some beneficial properties of this food, such as the antioxidant activity.

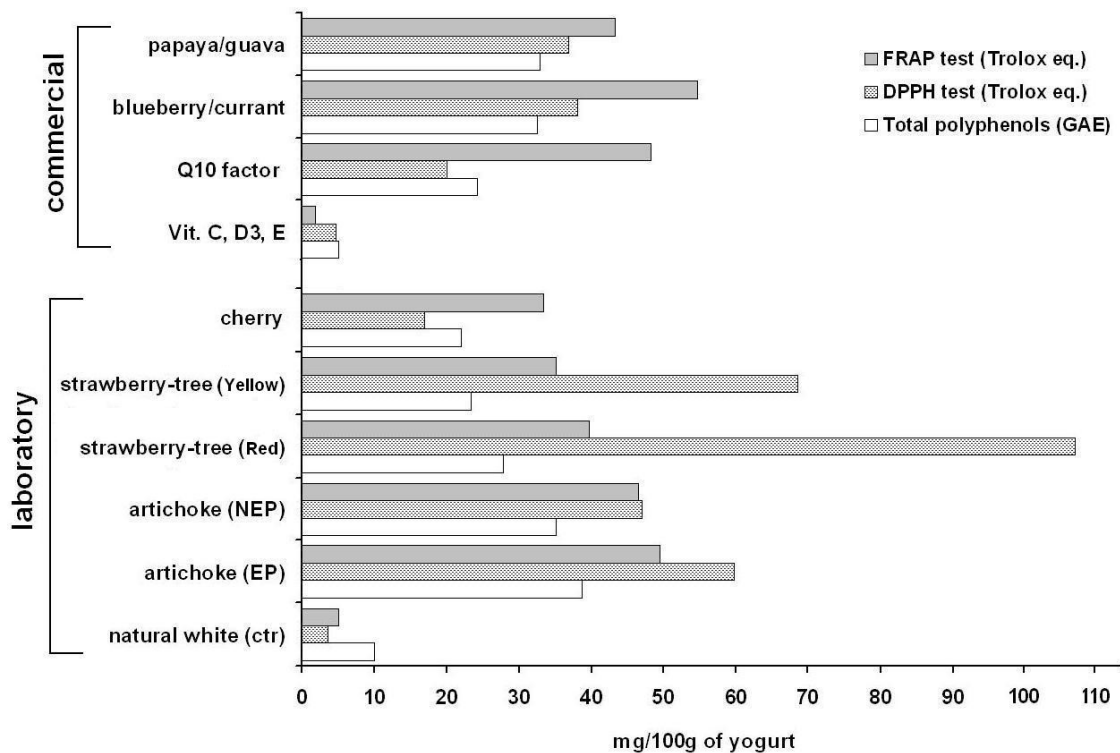


Figure 1. Antioxidant activities and total polyphenol contents of commercial and in laboratory supplemented yogurts.

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