



4th International Congress on Food and Nutrition

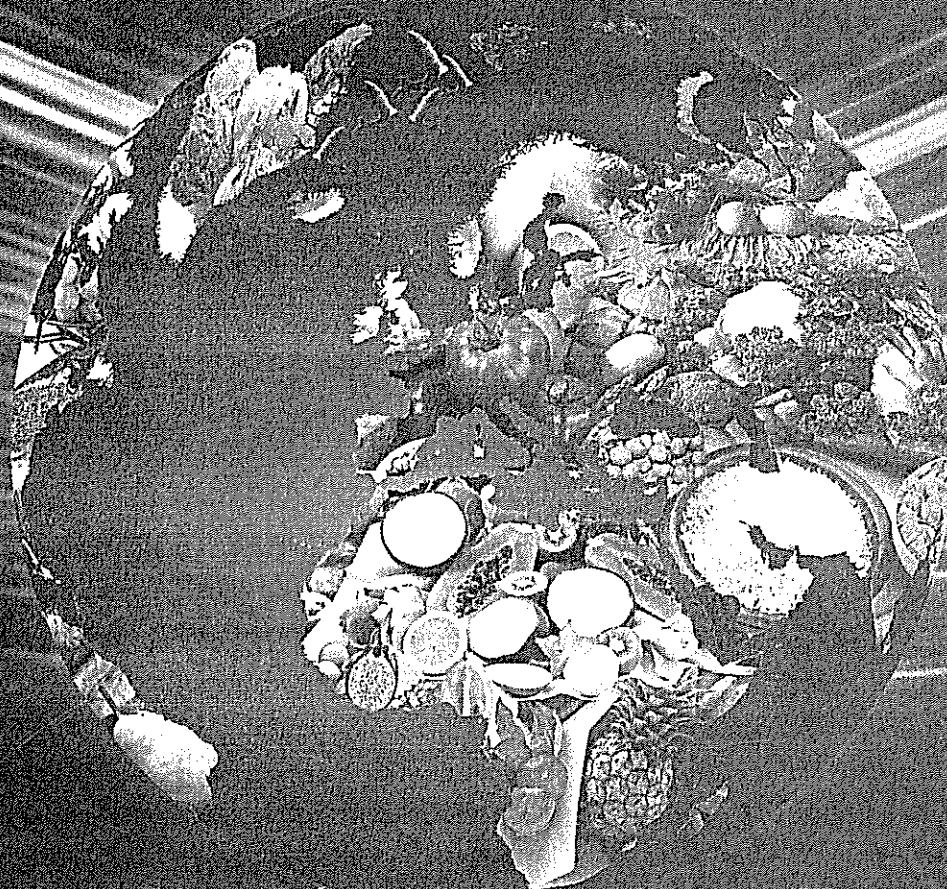
together with



3rd SAFE Consortium International Congress on Food Safety

FP7 PARALLEL EVENTS:

- MycoRed - 2nd Mediterranean Workshop on Mycotoxins and Toxigenic Fungi
- SAFETechnoPACK - International Food Packaging Conference



www.tubitaksafe-food2011.org

12-14th October 2011, Istanbul - Turkey

Abstract Book

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[P-020]
USE OF NANO-EMULSIONS IN FOOD

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Emulsion is a mixture formed by two immiscible or partially miscible liquids dispersing as droplets in each other. Nano-emulsions refer to nano-sized structures with droplets that have diameters between 50-200nm. These particles are formed by phospholipids that are arranged in a single layer on top of the inner crust, forming a middle layer inside the surrounding liquid phase. Nano-emulsions are one of the most important tools of transmission developed with the purposes of encapsulation and transmission of functional and bioactive products which are possible by means of nano droplets. These nano structures are obtained through ultrasonic shaking, high pressure homogenization and microfluidic channels. The determination of the type of nano-emulsion depends on the concentration of the substances in the system, manufacturing processes and the structure of the surface active agent. Through use of nano-emulsions and nanocapsules; aroma, color and nutritional elements can be added which results in the design and production of new and more functional food products that have developed sensory and technological properties. Hydrophilic substances can be made water soluble, lipophilic substances can be made fat soluble and incorporation of various bioactive substances into water or fruit juices is possible. Furthermore, nano-emulsions are used to increase the bioavailability of coenzyme Q10 (CoQ10) which has a very low intestinal absorption rate. Similarly an increase in the bioavailability of fat soluble carotenoids taken in with raw vegetables is possible through use of nano-emulsions. The formulation of vitamin E as nano-emulsions which allows incorporation into clear fruit juices at desired concentrations is also one of many different uses of nano-emulsions.

[P-021]
ANTIMICROBIAL AND ANTIOXIDANT ACTIVITIES OF *SALVIA VERTICILLATA*; POTENTIAL
NEW SOURCES OF NATURAL ANTIOXIDANTS

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This study was aimed at evaluating the antioxidant activity and efficacy of the ethanolic extract of the plant species *Salvia verticillata* in inhibiting the development of selected fungi and bacteria. The highest susceptibility to the ethanolic extract of *Salvia verticillata* among the bacteria tested was exhibited by *B. subtilis* and *S. aureus* (MIC = 15.62 µg/ml). Among the fungi, *A. niger* (MIC = 15.62 µg/ml) showed the highest susceptibility. Total phenolic, flavonoid, condensed tannin and gallotannin contents were 98.23±0.59 mg GA/g, 31.24±0.55 mg RU/g, 76.65±0.95 mg GA/g and 33.74±1.15 mg GA/g, respectively. Total antioxidant capacity was 99.45±0.98 µg AA/g. IC₅₀ values were determined for each measurement: 20.45±0.55 µg/ml for DPPH free radical scavenging activity, 26.46±0.68 µg/ml for inhibitory activity against lipid peroxidation, 68.34±0.53 µg/ml for hydroxyl radical scavenging activity and 47.31±0.58 µg/ml for chelating ability.