

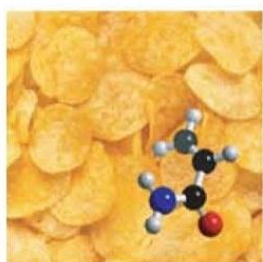
# BOOK OF ABSTRACTS

International conference on new knowledge on  
chemical reactions during food processing and storage

# CHEMICAL REACTIONS IN FOODS VII

November 14–16, 2012  
Prague, Czech Republic

J. Pulkrabová, M. Tomaniová, V. Godulová, K. Cejpek and J. Hajšlová  
Editors



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**INCORPORATION OF STRAWBERRY INTO YOGHURT: EFFECTS ON THE PHYTOCHEMICAL COMPOSITION**

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Yogurt has high nutritional value as source of calcium, protein, and provides the beneficial effects of living bacteria. Fruit preparations can be added to yogurt to create new products and combine the nutritional value of dairy and fruit matrices. Interactions of plant phenolics with proteins may lead to the formation of soluble or insoluble complexes. These interactions may have a detrimental effect on the *in vivo* bioavailability of both phenolics and proteins. The aims of this study were to establish evaluate the protein profiles of yogurt before and after the addition of strawberry and to assess the antioxidant properties and phytochemical of the fruit yogurt, in order to evaluate the possible interaction between protein and phenolic compounds therein. Industrial strawberry preparates containing 50% of fruit, 23% sucrose, 8% glucose-fructose syrup, starch (2%) were incorporated in natural yogurt and kept during 28 days at 2°C. Extracts were obtained with methanol: formic acid (9:1 v/v) and stored at -20°C for 1 h to facilitate protein precipitation. Extracts was centrifuged and supernatant filtered with 3 kDa membrane. Total antioxidant activity was assessed by the ABTS method, total phenolics by Folin Ciocalteu's method, and total anthocyanins by pH-differential method. Individual phenolics and anthocyanins were analysed by HPLC-DAD and proteins profile were analyzed by FPLC, SDS-PAGE and Urea-PAGE. An immediate decrease in total antioxidant activity and total phenolics was observed after addition of fruit prepare to yogurt. Antioxidant activity, decrease from 0.84±0.08 to 0.65±0.06 mg ascorbic acid equivalents/g fw. Total phenolics decrease from 1.14±0.05 to 0.98±0.03 mg gallic acid equivalents/g fw and anthocyanins did not change significantly (0.060±0.008 to 0.067±0.017 mg pelargonidin-3-glucoside/g fw). After 28 days at 2°C, the antioxidant activity decrease 18%, total phenolics 11% and anthocyanins 25%. Ellagic acid decreased 20%, while (+)-catechin, (-)-epicatechin, rutin and kaempferol increased 7, 5, 18 and 12%, respectively. Anthocyanins decreased by 18, 48 and 21% for cyanidin-3-glucoside, pelargonidin-3-glucoside and pelargonidin-3-rutinoside, respectively, during the 28-day shelf-life period. (+)-Catechin, (-)-epicatechin, rutin and pelargonidin-3-glucoside were always present in yogurt in lower concentration than in the original fruit (accounted for dilution effects), suggesting strong interaction of these phenolics with the dairy matrix. The only soluble protein detected was alfa-lactalbumin present at 0.22 mg/mL, which decrease 47% when fruit is added. This strong reduction suggests an immediate formation of complexes upon incorporation of strawberry prepare. Free alfa-lactalbumin continued to decrease (48%) during shelf-life, being less available to absorption. These results suggest that interactions between strawberry and yogurt components may affect nutritional availability.

**Keywords:** Antioxidant activity, yogurt, protein-phenolic complexes