

analysis of metabolite patterns according to genotoxicity revealed a separation between the high toxicity (TL > 150) samples and the low toxicity (TL < 100) samples. This separation was mainly due to the presence of sulfides in the high toxicity samples.

Conclusions: Higher protein intake is associated with a higher degree of protein fermentation but not with a higher fecal water genotoxicity. Increased genotoxicity was due to the presence of sulphides.

Key Words: protein, fermentation, genotoxicity, sulfides

27/706. Gut: An open door to Nutrition

Impact of feeding brassicaceae on bioactivation of glucosinolates via bacterial myrosinase in the murine gut

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Introduction: Isothiocyanates are effective chemopreventive compounds derived from glucosinolates, which are mainly contained in brassicaceous vegetables. They are formed by myrosinase that is released from myrosin cells upon plant tissue damage or by intestinal bacteria, which possess myrosinase activity.

Objectives: Microbial myrosinase is induced by incubation with glucosinolates. Therefore we hypothesized, that feeding a diet rich in glucosinolates may result in an improved bioactivation of glucosinolates by bacterial myrosinase.

Method/Design: Mice were fed a diet containing either broccoli sprouts (1.2% of dry mass) or in addition an extract from broccoli seeds high in glucoraphanin (4-Methylsulfinylbutyl glucosinolate) for 4 weeks. Further feeding groups received a diet containing either pak choi sprouts (1.2% of dry mass) or in addition an extract from pak choi sprouts high in neoglucobrassicin (1-Methoxy-3-Indolylmethyl glucosinolate) for 1 week. Mice that received no additives served as controls. After killing of the animals, either glucoraphanin or neoglucobrassicin was incubated with cecum contents anaerobically at 37°C. Degradation of glucosinolates and formation of metabolites were quantified using HPLC.DAD.

Results: Glucosinolate concentrations remained stable during incubation without bacteria. Almost complete degradation of glucoraphanin was observed within 24 hours of incubation with cecum contents of all feeding groups. The corresponding isothiocyanate sulforaphane was not detected in any of the incubations. Average

degradation of neoglucobrassicin within 24 hours of incubation was higher by cecal bacteria of mice fed a broccoli diet low or high in glucoraphanin (76.7 and 89.8%, respectively) compared with cecal bacteria of mice fed a pak choi diet low or high in neoglucobrassicin (46.3 and 48.0%, respectively) and of control mice (35.8%). Neoglucobrassicin, which was degraded, was detected in equimolar amounts as 1-Methoxyindol-3-carbinol, which is formed from 1-Methoxyindol-3-isothiocyanate.

Conclusions: Myrosinase of intestinal bacteria was constitutive, since a diet high in glucoraphanin or neoglucobrassicin did not result in an increase of bacterial activation of these glucosinolates.

Key Words: Glucosinolates, Myrosinase, Broccoli, Pak Choi, Intestinal microbiota

27/725. Gut: An open door to Nutrition

Traditional foods of plant origin maintain the mucosal immune response via its prebiotic effect on gut microbes

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Introduction: At the front line of host defense are the mucosal surfaces, which are in direct contact with varieties of members of microbiota formed under influence of regular food intake.

Objectives: The aim of proposed research is to test whether prioritised within BaSeFood project traditional foods and drinks as whole meal or their major plant components can provide stimulation (prebiotic) effect on gut microbial species which are beneficial to human health.

Method/Design: The complex of in vitro, and/or ex vivo and/or in vivo studies is undertaking to assess the micro-organism-mediated gut function regulation.

Results: *Lactobacillus salivarius* was stimulated by the extracts of fresh white cabbage, pumpkin, melon and cumin tea. The traditional Georgian dressings (red and green sauces from plum) similarly affected only two of *Bacillus* strains (*B. subtilis* and *B. licheniformis*) at the same time acting inhibitory for the *L. salivarius*, *Enterococcus faecalis* and *Morganella morganii* or demonstrating no effect on murine strain Schaedler's *Escherichia coli* and *E. coli* 058 of human origin. The lactobacilli were mainly inhibited by sauerkraut; whereas bacilli were sensitive to influence of fresh cucumber extract. Nettle was able to limit selectively the growth of Schaedler's *E. coli* compare to fresh juices of carrot, onion and grape affecting only on *E. coli* 058. Strains of *E. faecalis* and *M. morganii* were susceptible to the garlic. The beet extract did not influence on any of the tested strains of commensal gut flora representatives.

Conclusions: Ability of selected bioactive-rich plant extracts from traditional foods of Black Sea region countries to modulate and regulate host mucosal immune defense correlates with their promoting and antibacterial properties.

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Key Words: traditional foods of plant origin, prebiotic properties, gut microbes, mucosal immune response

27/815. Gut: An open door to Nutrition

Relative validity of a short qualitative food frequency questionnaire for national food consumption surveys

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Introduction: Food frequency questionnaires (FFQ) are often used as dietary assessment instrument in the context of epidemiological studies because of their inexpensiveness and low burden for participants. Moreover, in the context of nutritional surveillance they have potential to serve as a quick measure for long term usual food intake and identification of non-consumers.

Objectives: The aim of the present study was to assess the relative validity of a short self-administered qualitative food frequency questionnaire applied in the Belgian food consumption survey.

Method/Design: Comparison of food consumption data from an FFQ with 7-day estimated diet records (EDR) was performed in a sample of 100 participants (aged 15-90 years). The qualitative FFQ included 9 frequency categories and comprised a total of 50 foods. Both FFQ and 7-day EDR food intake was categorized into 15 food groups.

Results: De-attenuated Spearman rank correlation coefficients between the FFQ and the 7-day EDR ranged from -0.16 for potatoes and grains to 0.83 for alcoholic beverages (consumers only). The proportion of participants classified in the same tertile of intake by the FFQ and 7-day EDR ranged from 32% for potatoes and grains to 76% for alcoholic beverages. Extreme misclassification into opposite tertiles was <10% for milk and soy products, alcoholic beverages, fried foods and fats.

Conclusions: Notwithstanding the short nature and the absence of portion size questions, the FFQ appears to be valid in both genders and across different age categories for most food groups. However, for the food groups bread and cereals, potatoes and grains, and sauces, estimates should be interpreted with caution because of poor ranking

agreement with 7-day EDR.

Key Words: food frequency questionnaire, 7 day dietary record, validation, food group, nutritional surveillance

27/827. Gut: An open door to Nutrition

Impact of daily consumption of Vitamin A fortified oil on human milk Vitamin A concentration in lactating Moroccan women

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Introduction:

Objectives: To evaluate the efficacy of daily consumption of fortified oil in vitamin A on human milk (HM) vitamin A concentrations from low-income Moroccan women.

Method/Design: At 2 week post-partum, healthy lactating women (n=98) aged between 19 and 40 years from a local health centre from Rabat, Morocco, were randomly assigned to receive weekly a quantity of 2 litres of vitamin A-fortified Soya oil (HSF) (33 UI.g of oil) or non-fortified Soya oil (HS) during 6 months post-partum. HM samples were collected at baseline and monthly (until 6 month post-partum before they receive their weekly ration of Soya oil). All women received a supplement of vitamin A (200 000 UI) after HM baseline collect (15 days post-partum). HM retinol (HMR) was determined by HPLC-DA.

Results: 1-At baseline there is no significant difference between the HSF (1.9 µmol.l) and HS (1.8µmol.l) groups in HMR concentration. 2-The mean of HMR concentrations were adequate at 3 months post-partum in both treatment groups (>1.05 µmol.l). 3-Between 4 and 6 month, there was a decline of lower vitamin A milk concentrations under 1.05µmol.l for HS group (1.0±0.3µmol.l, 0.8±0.2µmol.l and 0.6±0.1 µmol.l respectively for 4, 5 and 6 month). 4-For the HSF group the level of HMR was higher than HS group as from the 1st month. The difference was strongly significant (p<0.0001)

Conclusions: 1-Supplementation with a high dose of vitamin A has a positive impact on milk vitamin A concentration but was not sufficient to maintain adequate milk vitamin A levels throughout lactation, it has limited to the first 3 months of lactation. 2- Fortification is considered a long-term strategy for sustaining and improving adequate human milk vitamin A concentration during the 1st 6 month of lactation.

Key Words: oil fortified, vitamin A, supplementation, human milk retinol concentration, lactating women,