

New food with natural content of vitamin D

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with the hydrolysate. A total of 71 hypertensive subjects (placebo and active substance groups) and 50 normotensive volunteers (only active substance) were enrolled. All subjects consumed one liquid yogurt (150 ml) per day during 6 weeks.

Results: The active peptides were stable during the processes of atomization, homogenization and pasteurization. When the hydrolysate was incorporated into liquid yoghurt, no significant reduction of peptides was detected during the shelf-life of the product. The amount of the active peptides in the ingredient was between 2.5-3.1 mg.g hydrolysate, and the dose of active peptides administered during the trial ranged between 5.8 to 7.3 mg. After 6 weeks of consuming the yogurt containing the active ingredient, the hypertensive patients showed a change in their systolic blood pressure of -12.5 mmHg with a confidence interval between 4.7 and 20.2 mmHg ($p \leq 0.05$). It has to be highlighted that no significant changes in blood pressure were detected in both the placebo and the normotensive groups.

Conclusions: The beneficial effect of an active casein hydrolysate on hypertensive subjects has been demonstrated.

Key Words: Milk Peptides, Hypertension, Clinical Trial

27/790. Innovation in Food for Optimal Nutrition

New food with natural content of Vitamin D

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Introduction: Vitamin D status is too low in many parts of the population. A larger diversity of food products with high vitamin D content may increase the vitamin D intake. Mushrooms and yeast have a high content of ergosterol which is known to be converted to vitamin D₂ by UV-exposure.

Objectives: We investigated the effect of UV-exposure from lamps on vitamin D₂ formation and growth of white button mushrooms (*Agaricus bisporus*) during the growth phase, and post harvest exposure by natural sunlight at different latitudes.

Method/Design: The UV-exposure of the mushrooms was performed just prior to harvest by UV-B lamps in the range of 0-2500 mJ.cm. Post-harvest by 200 mJ.cm and by sun-exposure at different latitudes and duration.

Results: The results show that the content of vitamin D₂ was 0.7-164 µg.100g fresh weight, and there was a linear relationship between UV-dose up to 250 mJ.cm and vitamin D₂ content. There was no effect of UV-exposure on mushroom growth. The preliminary results of sunlight exposure of mushrooms to sunlight show a content of 3 µg.100g after 90 min in Madrid (latitude 40 N) at noon and 7 µg.100g after exposure for 12 hours between 11 am and 3 pm for three consecutive days in Copenhagen (latitude 55 N). All results will be ready at the end of June, and will be presented at the conference.

Conclusions: The preliminary results demonstrate that mushrooms may be produced with a high and natural content of vitamin D either pre-harvest by UV-lamps or post-harvest by sunlight. The potential of these results is that mushrooms may become a significant

vitamin D source. In Denmark, for example, with the current average intake of mushrooms, bio-fortified mushrooms would contribute to a 26% of the recommended dietary intake of vitamin D.

Key Words: ergosterol, Vitamin D, biofortification, mushrooms

27/829. Innovation in Food for Optimal Nutrition

Association of weight status with quality of life, physical fitness and symptomatology in female fibromyalgia patients

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Introduction: Fibromyalgia (FM) is a relatively new and unknown disease compared to other established diseases. Factors related to this pathology and its symptomatology are not fully understood.

Objectives: We aimed to analyze the relationship of weight status with quality of life, physical fitness and symptomatology in Spanish female FM patients.

Method/Design: The sample comprised 177 Spanish women with FM (51.3±7.3 years). We assessed the following variables: tenderness (pressure algometry), quality of life (the Short-Form-36 Survey, SF36), and symptomatology (the Fibromyalgia Impact Questionnaire, FIQ). Physical fitness was measured by means of the 30-s chair stand, handgrip strength, chair sit&reach, back scratch, 30s blind flamingo, 8-feet up&go and 6-min walking tests. The international criteria for body mass index was used to classify the patients as normal weight (NW), overweight (OW) and obese (OB).

Results: Thirty-two percent were NW, 35% OW and 32% OB. We have observed worse quality of life across weight status categories in the following SF36 subscales: physical functioning, bodily pain, general health ($P < 0.01$) and mental health ($P < 0.05$). Both OW and OB patients had higher levels of pain than NW, as assessed by FIQ and SF36 questionnaires and tender point count ($P < 0.01$). Both OW and OB patients had higher levels of fatigue, work difficulty, morning tiredness and stiffness ($P < 0.05$) than NW patients. Cardiorespiratory fitness, dynamic balance, motor agility (both $P < 0.05$) and upper flexibility ($P < 0.001$) were worse across higher weight status categories, whereas pairwise comparisons showed significant differences mainly between NW and OB group.

Conclusions: OB female FM patients displayed worse quality of life, cardiorespiratory fitness, dynamic balance, motor agility and upper flexibility than their NW peers. The FM symptomatology in OB patients did not differ from OW patients, whereas NW patients significantly differ from either OW and OB patients.

Key Words: Fibromyalgia, Women, Weight Status, Physical Fitness, Quality Of Life and Fibromyalgia Symptoms

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