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Oral Abstract Presentations

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WHAT ABOUT LEGUMES AS A PLANT SOURCE OF THE DAO ENZYME?

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Introduction: The use of exogenous diamine oxidase (DAO) enzyme has been recently postulated as a potential strategy for the treatment of histamine intolerance, a disorder in the homeostasis of histamine caused by a reduction of its intestinal degradation. Dietary supplements based on gastro-resistant encapsulated porcine kidney protein extract are available on the market to reduce the symptoms of this intolerance. Although with scarce scientific research, there are some references about the potential of pea seedlings as a source of DAO.

Objectives: To study the capacity of legumes and their sprouts to reduce histamine in vitro and evaluate the influence of different growing conditions on this enzymatic activity. If confirmed, legumes could become an advantageous alternative to porcine DAO enzyme from a productive and sustainable perspective.

Methods: In vitro DAO activity was measured through an enzymatic assay and the subsequent analysis of remaining histamine by UHPLC-FL. Analysed samples were both raw pulses and sprouts of lentils, beans (white, red and black), broad beans, peas, chickpeas and soy.

Results: Histamine-degrading capacity was found both in raw pulses and sprouts of some legumes. Lentils, broad beans and white, red and black beans showed in vitro DAO activity, ranging from 0.32 to 1.95 mU/g (nmols of degraded histamine per minute/g of legume). This activity was absent in raw peas, chickpeas and soy. Etiolated sprouts (grown in darkness) of various legumes showed higher DAO activity in comparison with raw pulses, with mean values of 40.25±8.1 mU/g in chickpea sprouts, 35.2±5.3 mU/g in lentil sprouts and 27.5±1.3 mU/g in pea sprouts.

Conclusions: Results confirm the ability of various raw pulses and legume sprouts to reduce histamine in vitro and their potential as a plant source of the DAO enzyme. Further studies are needed to better establish the influence of growing conditions of the sprouts and extraction treatments on DAO activity.

Conflict of interest: Authors declare no conflict of interest.

Key words: histamine / histamine intolerance / DAO / legumes / sprouts.

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LOW-HISTAMINE DIET SUPPLEMENTED WITH EXOGENOUS DIAMINE OXIDASE ENZYME IS USEFUL FOR TREATING MIGRAINE IN PATIENTS WITH DAO DEFICIENCY

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Introduction: Low-histamine diets and/or exogenous diamine oxidase (DAO) supplementation are currently used to treat symptoms of histamine intolerance (IH), a disorder in histamine homeostasis that increases its plasma levels, mainly due to DAO deficiency. Headache is the most recognized symptom.

Objectives: To assess the effectiveness of a low-histamine diet plus a DAO enzyme supplement on the remission of migraine in subjects with DAO deficiency.

Methods: An intervention study was carried out in 212 individuals with a migraine diagnosis by a neurologist according to the International Classification of Headache Disorders and with DAO deficiency (DAO <80 HDU/ml). Subjects followed a 3-month low-histamine diet based on the exclusion of foods considered rich in histamine or other biogenic amines and usually related to the onset of HI symptoms, such as fermented products (cheese,

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dry-fermented sausage, wine, beer), semi-preserved and canned fish, shellfish, certain fruits and vegetables (spinach, tomato, eggplant, avocado, citrus, bananas, strawberries, pineapple, nuts) and chocolate[1,2]. A DAO supplement was administrered before breakfast, lunch and dinner. Outcomes assessed were duration and number of attacks and perception of pain intensity with a score-scale from 0 (absence) to 10.

Results: Most subjects showed an improvement in migraines after the 3-month treatment: 34.9% reported complete remission and another 35.8% had a reduced number of migraine episodes per month, of less duration and pain intensity. The treatment was less successful in 29.3% of patients. On average, when comparing baseline and final values after treatment, all outcomes were significantly reduced: 8 to 2 attacks per month, 24 to 3 hours of pain and 8 to 4 in pain intensity scoring.

Conclusions: A low-histamine diet supplemented with the DAO enzyme for three months was useful in reducing the number of attacks, duration and intensity of pain in migraineous patients with DAO deficiency.

References: [1]Rosell-Camps et al. (2013); [2]Wagner et al. (2017).

Conflict of interest: Authors declare no conflict of interest.

Key words: DAO / histamine / low-histamine diet / migraine.

Poster Abstract Presentations

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FOOD ALERT NETWORK AND ITS RELATIONSHIP WITH ADVERSE REACTIONS TO FOOD

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Introduction: In Andalucía, the possibility of suffering an anaphylactic shock due to food intake has quadrupled in the last two decades. Adverse reactions due to allergies and food intolerances are thus a public health problem in our Autonomous Community.

We have distinguished 14 substances with a higher risk of causing food allergy, so their inclusion in nutrition labeling is mandatory. Since 2008, specific allergen control programs have been carried out on foods marketed in Andalucía.

Objectives: To analyze the situation of food alerts due to the presence of undeclared allergens as a basis for action in those sectors with the greatest involvement. To contribute to a high degree of health protection against food-borne risks, and to promote the quality of the environment where people live

Methods: Source of information: Database of alerts network of the Área Sanitaria Norte de Málaga (ASNM). Categorization of foods according to the Guide for the Operation of the General Sanitary Registry of Food and Food Companies.

Procedure of action according to the ALERT PROCESSING Manual (Ministry of Health of the Junta de Andalucía).

Results: The number of alerts in our ASNM related to allergens has risen significantly in recent years. The foods with the greatest implication are of plant origin (cereals).

Conclusions: The increase of alerts coincides with the implementation of Regulation 1169/2011 and is related to the agri-food characteristics of our Autonomous Community.

Conflict of interest: Authors declare no conflict of interest.

Key words: food allergy / public health / alerts.