RESEARCH TRENDS ON TOMATO PRODUCTS

Montaña Cámara Hurtado
Food Science and Nutrition Department. Pharmacy Faculty.
Universidad Complutense de Madrid. Spain.
mcamara@farm.ucm.es

ADVANCES IN TOMATO AND HEALTH ASPECTS

- Tomato Products and Byproducts as
  NOVEL FOODS AND NOVEL INGREDIENTS DEVELOPMENT

- VALORIZATION OF FINAL PRODUCTS
  - Nutritional Value: NUTRITIONAL PROFILES

  - Bioactives Compounds: HEALTH CLAIMS
EUROPE - **Novel foods**

“**foods and food ingredients that have not been used for human consumption to a significant degree within the Community before May 1997**”


---

**NOVEL FOOD AUTHORIZATIONS**

Reglament CE. 258/97

- **Decisión 2009/365/CE de la Comisión**, de 28 de abril de 2009, *licopeno de Blakeslea trispora* as new ingredient
  - Solicitant: Vitatene, UK. Características: > 95% licopeno trans, <5% otros carotenoides

- **Decisión 2009/362/CE de la Comisión**, de 30 de abril de 2009, *licopeno de Blakeslea trispora* as new ingredient
  - Solicitant: DSM Nutritional Products Ltd. Irlanda. Características: > 96% licopeno

- **Decisión 2009/355/CE de la Comisión**, de 28 de abril de 2009, *licopene from tomato oleoresin* as new ingredient
  - Solicitant: Lycored.

  - As new ingredient Solicitant: BASF.

- **Decisión 2006/721/CE**, *licopeno de Blakeslea trispora* As new ingredient
  - Solicitant: Vitatene, AntibioticsUK. Características: > 95% licopeno cis-trans
Use of lycopene as a food colour¹

Scientific Opinion of the Panel on Food Additives, Flavourings, Processing Aids and Materials in Contact with Food

(Questions No EFSA Q-2007-001, Q-2007-081, Q-2008-076)

Synthetic lycopene from *Blakeslea trispora* (E160d)

Acceptable Daily Intake (ADI) for lycopene of 0.5 mg /kg body

High consumers of foods containing lycopene such as pre-school and school children, may exceed the ADI.

Non-alcoholic flavoured drinks are the largest potential source of lycopene.

Specifications for lycopene from tomatoes may need to be updated taking the actual lycopene content in current colouring preparations into account.
Regulation on Nutrition and Health Claims made on foods
Reglaments 1924/2006 and 1925/2006

Article 4
The setting of nutrient profiles for foods bearing nutrition and health claims

Article 13
Health claims other than those referring to the reduction of disease risk and to children's development and health

Article 14
Reduction of disease risk claims and claims referring to children's development and health

TOMATO FIBRE
Accepted Manuscript

Nutritional Characterization of tomato fiber as a useful ingredient for food industry
P. Garcia Herrera, M.C. Siñachez-Mata, M. Címaca
DOI: 10.1016/j.ifosfet.2010.07.005
Reference: INNFOO-715

To appear in: Innovative Food Science and Emerging Technologies

- TF has an average value of 80% of total dietary fiber (much higher than other vegetable by-products), being insoluble fiber the major component.
- TF can be considered under the denomination of "Source of Fiber", since its contents surpasses 3g/100g.
- A minimum addition of 3.9 g of TF per 100g of final product will be enough to meet the legal requirements to use the nutritional claim "Source of Fiber".
Foods promoted with claims might be perceived by consumers as having a nutritional, physiological or other health advantage over similar or other products without claims.

The use of nutrient profiles aims to avoid a situation where nutrition or health claims could mislead consumers as to the overall nutritional quality of a food product when trying to make healthy choices in the context of a balanced diet.

• The FOOD NUTRITIONAL PROFILE is based on its proximate composition plus the specific content of FAT, SUGARS AND SALT.

**ANNEX 1: Specific nutrient profiles and conditions of use, which food or certain categories of food must comply with in order to bear nutrition or health claims**

<table>
<thead>
<tr>
<th>Food category</th>
<th>Specific conditions*</th>
<th>Thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable oils and spreadable fats as defined in Council Regulation (EC) No 2004/294</td>
<td></td>
<td>Sodium (mg/100g or 100ml)</td>
</tr>
<tr>
<td>Fruits, vegetables, seeds, and their products, except oils</td>
<td>Minimum 50g of fruit and/or vegetable per 100g of finished products</td>
<td>400</td>
</tr>
<tr>
<td>Seeds** and their products, except oils</td>
<td>Minimum 50g of nuts per 100g of finished products</td>
<td>400</td>
</tr>
</tbody>
</table>
LYCOPENE ANTIOXIDANT EFFECT

- Reactive Oxygen Species (ROS)
- Antioxidant Potential
- Oxidative Stress
- Oxidative Damage
- Chronic Diseases
- Cancer Risk
- CVD Risk

- Dietary Lycopene
- Blood and Tissue Lycopene Levels
- Gene Function Regulation
- Gap Junction Communication
- Hormone/Immune Modulation
- Metabolic Reactions
- Carcinogen Metabolism

NC: nutrient claims
HFC: health function claims
LYCOPENE STABILITY ON TOMATO PRODUCTS

- Juices
- Tomato Peeled
- Gazpacho
- Crushed Tomato
- Ketchups
- Sauces

Project OTRI, UCM-AGRUCON-MESA del TOMATE- ASOZUMOS 2009-10.

MCámara, 2010
CONCLUSIONS

A daily intake of 7 to 8 mg of lycopene is enough to maintain levels of lycopene necessary to show its antioxidant capacity and prevent chronic diseases (Rao, 2006).

CONSUMER NEEDS - EXPECTATIONS

CONSUMER PREFERENCES IN FRUIT JUICES.
HEINZ SUNSHINE CASE STUDY
Cámara, M. Fernández-Ruiz, V.; Sánchez-Mata, M.C.
Universidad Complutense de Madrid – Food science and Nutrition Department.
9 /10 LIKE TOMATO FLAVOR

Sabor del tomate:

12.1% LITTLE, NOTHING

87.8% a LOT

Estudio Heinz Sunshine

INTEGRATED APPROACH

PRODUCTION

PROCESSING

QUALITY

MARKETING

Byproducts

Inputs

SUSTENTABILITY

Consumer needs - expectations